May · 1961

American Perfumer

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American Perfumer

VOL. 76, NO. 5 May, 1961

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reminds one of Orris,
Vetiveryl Acetate, or tropical wood.
Economical, stable in soap,
it blends well with floral
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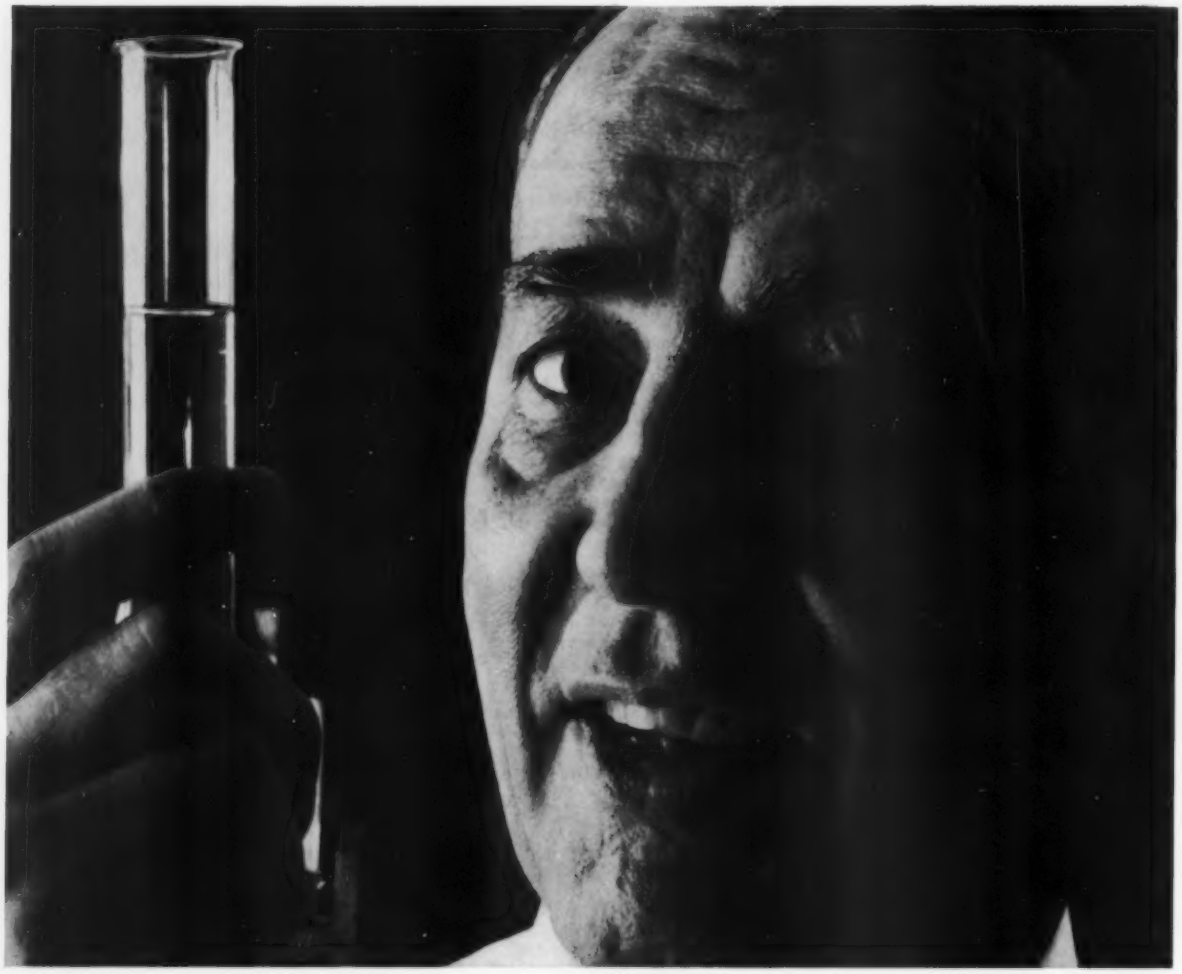
This anti-perspirant chemical has a pH like the skin



To get the right basic ingredient for your anti-perspirants, get Reheis CHLORHYDROL®. No buffering is needed with this basic ingredient. Its pH (ranging from 4.0 to 4.2) closely approximates the lower range of the normal pH of the skin, and also makes it much less destructive to fabrics.

CHLORHYDROL is much less acid than other active ingredients and has a higher aluminum content, so is much less destructive to perfuming agents. It can be used with a wide variety of perfumes.

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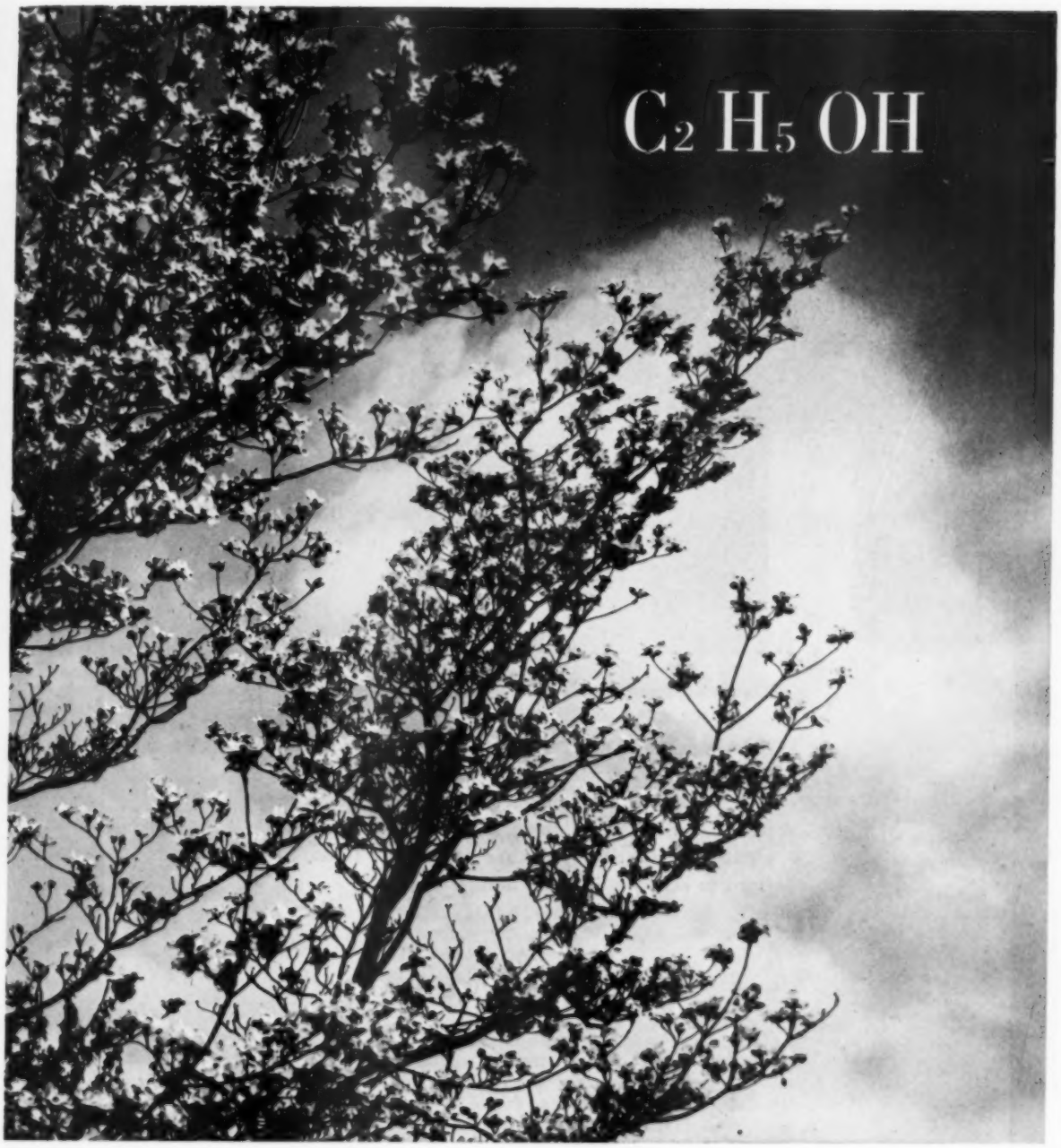

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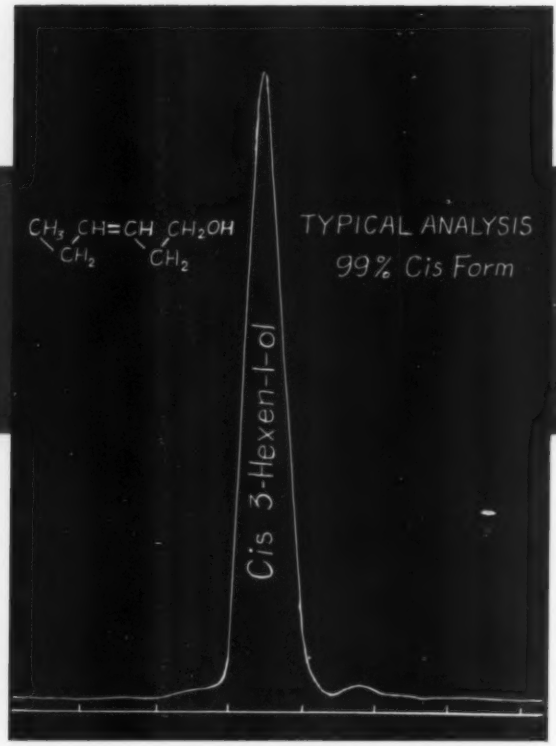

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Straight Wall
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LOOKS LIKE REFILLABLES . . . *BUT ARE NOT!*
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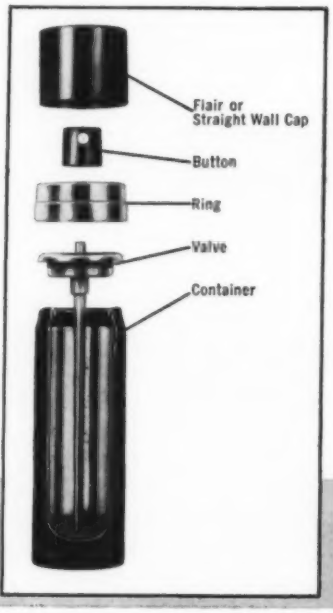
LOOKS DIFFICULT TO ASSEMBLE . . . *BUT ARE NOT!*
LOOKS COSTLY TO FINISH AND DECORATE . . . *BUT ARE NOT!*
LOOKS LIKE THEY REQUIRE INNER CONTAINERS . . . *BUT DO NOT!*
LOOKS LIKE THEY NEED SPECIAL VALVES . . . *BUT DO NOT!*



Yes, these brand new MF 'exclusives' look identical to refillable packages requiring inner containers. That is where the resemblance ends!

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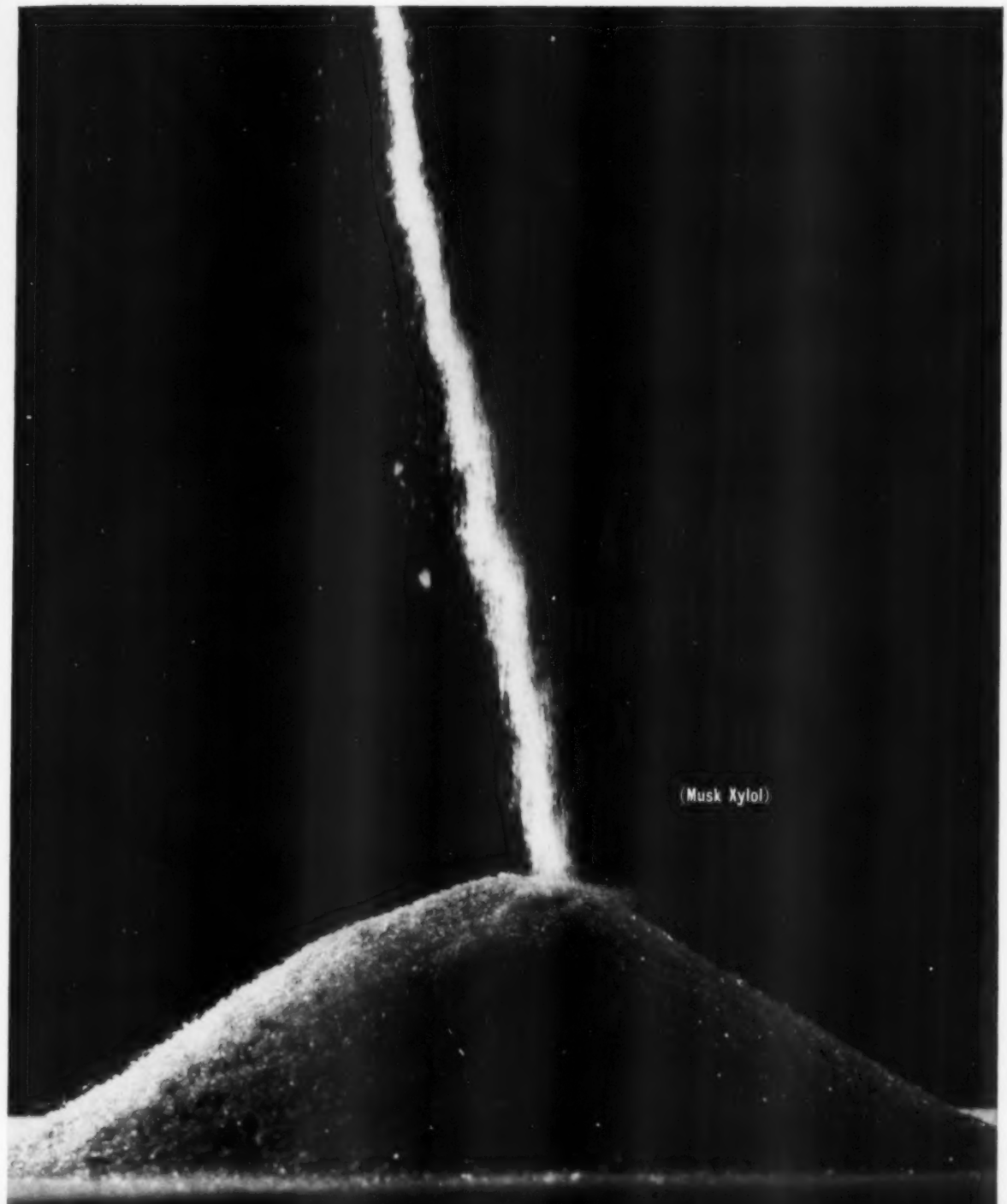

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REACTIONS

Wants perfume magazine

Recently, I wrote to a firm in Eastern United States asking them for information on the best perfume industry magazine. They suggested I contact you.

I am sure that they would not misdirect me, and hope that you can send me a sample copy and prices for subscription.

Very truly yours,—L.F.G., Chemist
Mexico

We certainly appreciate this recommendation and will constantly endeavor to merit the approval of cosmetic and perfume chemists. The sample copy has been sent to you along with our subscription prices.—Editor

pH Value Decreases in Perfume with Solubilizer

I should like to take this opportunity to mention the results of some experiments we have recently carried out that deal with solubilization of perfumes. We have been working on mixtures of surfactants to add to a perfume concentrate which will make it water-dispersible, or water-soluble.

The purpose of this work has been to prepare perfumes which can be used in permanent waving lotions based on ammonium thioglycollate with a pH value of 9.5 (±0.1).

When the perfume with solubilizer is shelf tested in the waving lotion, it is accompaied by a gradual loss in the performance of the lotion. It would seem that the free ammonia present reacts with the surfactant to form ammonium salts. This is accompanied by a gradual decrease in the pH value. Consequently, the performance of the waving lotion is notably affected.

I cannot recall any mention of this reaction in the literature, and I wonder whether you, or others, have come across this problem?

G. M. Howard,
Perfume and Cosmetic Laboratory,
A. Boake, Roberts & Co. Ltd,
London, England

Any one have the answer? Write Reactions, American Perfumer, 418 No. Austin Boulevard, Oak Park, Ill.

Dandruff ointment formula

Here is our formula for a dandruff ointment which we propose to market. Can you give us advice on its suitability.

H.G., California

This product, as you know, is now considered a drug by the Food and Drug Administration. As such, any new drug, under the new drug section of the Act, must clear through the FDA.

However, both the United States and the British Pharmacopoeias have recognized formulas for sulphur ointments.

The British Pharmacopoeia uses 10% of sublimed sulphur, whereas the U.S.P. 10, uses 15%, both in lard.

Menthol in a fatty vehicle generally is not cooling. It is usually considered warming and stimulating.

To keep out of difficulties with the F.D.A., we suggest that you stick to the U.S.P. or N.F. type ointments. If you do not have a pharmacopoeia, or a National Formulary in your library, I am sure you will have no problem in finding these at the public library or at the Pharmacy College of one of your nearby universities. —Editor

List of fragrances

We are a wholesale cosmetic and toiletry distributor, and are interested in a list of all fragrances.

Would you forward such a list to us, or advise us where we may be able to obtain this information.

G. M. F., Illinois

If you refer to trade names of materials used in the Perfumery trade, there is such a list in the 1960 Drug and Cosmetic Year Book.

For names of perfumes sold to the public, you will have to check through The Fragrance Foundation, Inc., 150 East 42nd St., New York City, or through lists of registered trade marks. —Editor

Cosmetic companies

Would you kindly inform us as to the availability of a list of cosmetic companies in the United States and Canada. If a list is available, how might we be able to obtain it?

J.D.P., Pennsylvania

We do not have an available list such as you require. However, you might contact the Toilet Goods Assoc., for possible assistance.

Discover the exciting world of spice with

ISO EUGENOL

by SHULTON

Shulton's years of skill and experience in the manufacture of Iso-eugenol assure a truly superior spicy-floral aromatic with absolute consistency in fragrance quality. Meticulous aging imparts to Shulton Iso-eugenol the well-rounded character essential to meet highest standards of odor specification. It is thus indispensable for quality carnation, floral, oriental, fantasy and other popular odor complexes. For these reasons, successful manufacturers depend upon Shulton Iso-eugenol. For information and samples, why not write today?

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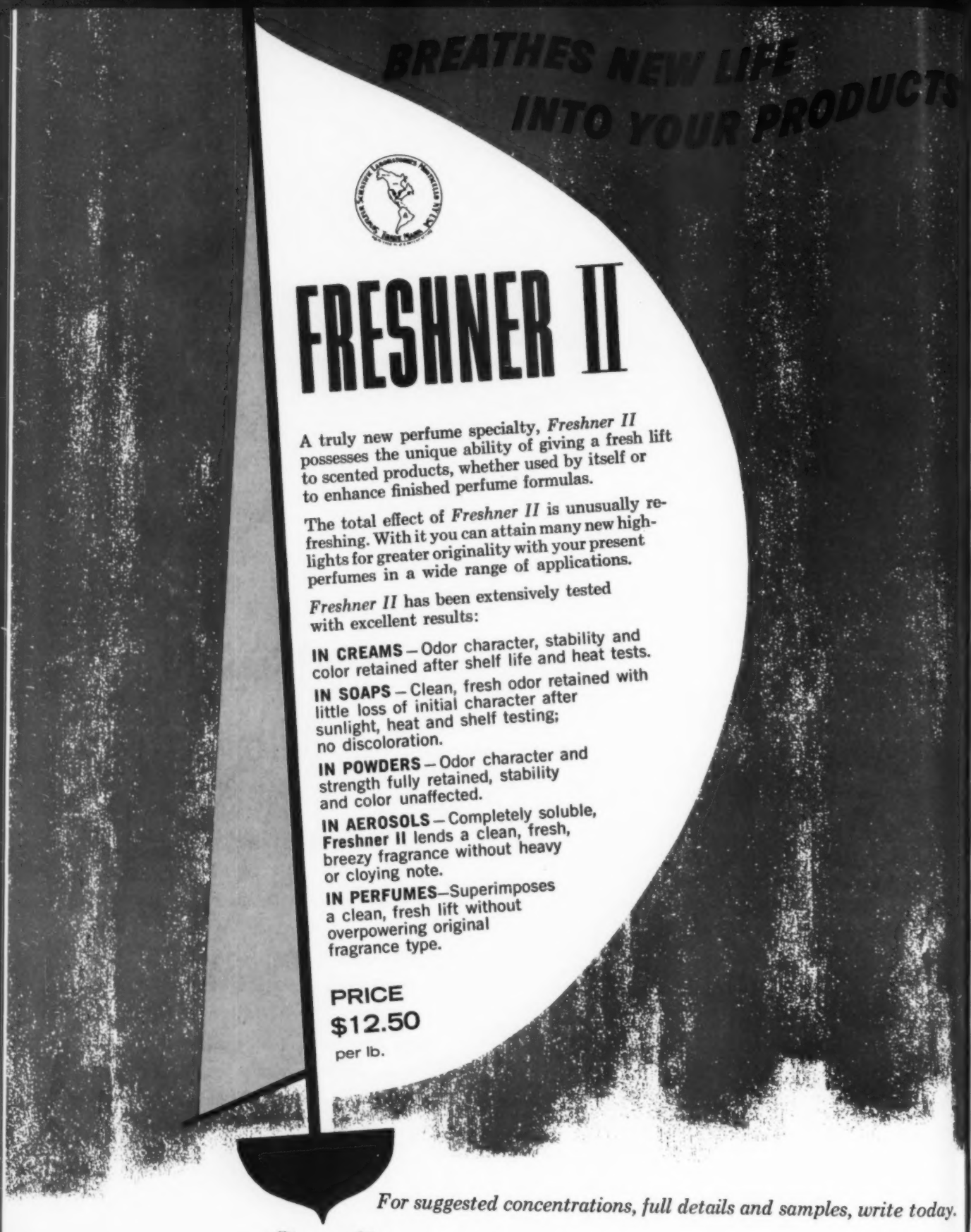

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The total effect of *Freshner II* is unusually refreshing. With it you can attain many new highlights for greater originality with your present perfumes in a wide range of applications.

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IN SOAPS – Clean, fresh odor retained with little loss of initial character after sunlight, heat and shelf testing; no discoloration.

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IN AEROSOLS – Completely soluble, **Freshner II** lends a clean, fresh, breezy fragrance without heavy or cloying note.

IN PERFUMES—Superimposes a clean, fresh lift without overpowering original fragrance type.

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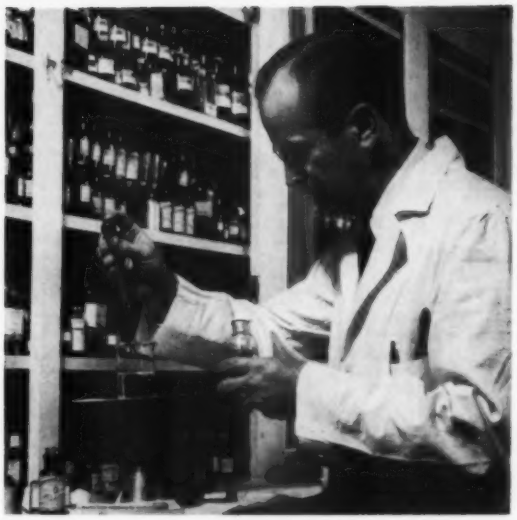


Maison G. deNavarre, M.S., F.A.I.C.

Notes

IT'S A PARTICULAR TREAT to be able to start off this Edition with the announcement that George Kolar birdied out in Palm Springs while calling on the trade. Apparently witnesses to the hole-in-one were Joe Schultz and George Turek. Good luck George—I have your rain check for the drink. It proves that a fellow can have a bum leg and still make it if he is with the right people . . . . The Leningrad Perfumery factory has announced the use of an antibiotic (sodium usnate) in Eau de Cologne "Troiny."

. . . . Lubowe is said to have found that biphenamine hydrochloride can control baldness . . . . Freon 11-S is Freon 11 containing an inhibitor of the alcohol reaction mechanism in aerosols. It is now commercially available at no increase in price . . . . which reminds me, the 1960 aerosol output in the U. S. A. and Canada is estimated at 700,000,000 units, worth $750,000,000 according to the A.T.I. Pressure Gauge.

. . . . A recent Federal district court ruling lengthens the reach of the Food, Drug and Cosmetic Act by reciting that a drug sold only within one state but made of materials bought outside the state is subject to the Act. This case may easily end up in the Supreme Court . . . . A series of so-called graft celluloses are available in commercial quantities. The "graft" polymers (and I wonder if that isn't stretching the meaning) are cellulose with a low degree of ethylene oxide substitution, insoluble in water but easily solubilized by alkalies.

. . . . Maybe the palm readers weren't all fakirs. For now Hale, Phillips and Burch tell us in the April 8th issue of the *J. A. M. A.* that palm reading may offer a clue to congenital heart disease. Horoscopes based on the Zodiac may come into their own next . . . . Grateful thanks to Dr. Bernard Oser for the publication in April of their house organ *Food and Drug Research,* a composite food additive "White List" as of March, 1961. It is thorough and expertly prepared.

. . . . There are indications that certain citrus oils, lime in this case, have tumor promotion properties in the mouse fore-stomach if exposed to DMBA or 3,4-BP . . . . The use of a pre-shave with the electric razor enables the clean cutting of the whisker, whereas without it, the whiskers appear to be broken or wrenched off.

. . . . The past month has taken me through Europe where I bumped into Canadian Jack Quigg (Compagnie Parento) and Steve Goode (R.I.T.A. Chemical) in Paris. Also became part of the floor show at Patachou's while Jean Sfiras and Pierre Blaizot (both Roure Bertrand) were busting a corpuscle laughing. Then Darmstadt, Frankfort (with apple wine) and Munich, with lunch at Bruno Storp's Mother's home, among other activities. Zurich and London, then Home on Good Friday. The trip left me with a cold so a little rest in Eleuthera in the Bahamas, followed by a trek to the American Pharmaceutical Association Convention in Chicago, where the quality of the technical papers was quite mediocre.

FDA Regulation by Press Release

Regulation by press release was a favorite tool of HEW Secretary Fleming, if one looks over his accomplishments during his tenure of office. Perhaps he shall go down in history for his cranberry scare for which the Federal Government compensated growers to the tune of $10 million for losses suffered as a result thereof. FDA regulatory officers whom I have heard speak on this subject don't give the same explanation which makes one wonder as to what the truth really is.

But the point I want to make is that an article by E. L. Smith entitled "The Cranberry Scare and Cabinet Immunity" which appears in the April issue of the *Food Drug Cosmetic Law Journal* is MUST reading for anyone interested in the way Sec. Fleming used press releases, and the immunity against legal action he enjoyed because of the Federal Tort Claims Act, even if he injures innocent parties "out of spite or malice".

Now we have a new Secretary of HEW. One wonders how he will be.

Again we are faced with an act

which stems from one private label supplier—but a major one—who fabricated eye pencils for many of the best and largest companies in the industry. HEW P-55 release of April 24 does mention Jensens, Inc., the private label supplier, but it certainly doesn't make it clear that the seizures at Avon, Hazel Bishop, Max Factor, Maybelline and Helena Rubenstein all were based on the error at Jensens, Inc. (Jensens, Inc., major producer of the crayon portion of eye pencils used certain aniline colorants which are not permitted in eye make-up.) In the end the list of seizures may read like a directory of the toilet goods industry.

The distributors of the offending eye pencils undoubtedly have guarantees under the Food, Drug and Cosmetic Act. Voluntary recall and seizures are quickly removing the offending cosmetics from the market. But this unparalleled action in the cosmetic industry puts all private label manufacturers on the spot, unintentional though it was. Now, who can trust whom?

A couple of questions arise from this F.D.A. action. One, for example: are the aniline colorants (as insoluble color lakes) as harmful when used in the eye area as the F.D.A. implies they are? Why didn't at least one of Jensen's "big" customers test the pencil to see if it was made of the right colors? Doesn't a little of the responsibility for the fiasco belong to the aniline color supplier who must have had an idea of how the material was used?

Now, apparently Sec. Ribicoff, on a recent TV interview, couldn't resist the publicity and made the eye pencil development a call for further cosmetic legislation. Plugging the "burden of proof of safety" on cosmetic manufacturers, Sec. Ribicoff is off-base in the eye pencil episode. Safety had nothing to do with the use of "coal tar colors" in the eye make-up. Millions had been sold and used over nearly a ten year period. The number of complaints was fewer than one could get from the safest pre-tested cosmetic. In referring to hair dyes, hair lacquer and nail polish as unsafe products, methinks there is a little explaining to do here too. Is he referring to current merchandise or what happened years ago?


for
her
hair...


for their skin...


for
her.
"air."


for her
"him"...


for the
fine fragrances
in *your*
toiletries &
cosmetics...
rely on
Rhodia

On the preceding pages, your customers, as the Rhodia perfumer sees them— interpreted by the distinguished photographer, Richard Heiman.

In the marketing of toiletries and cosmetics, no single element of product is so personally oriented or so subtle an influence on purchasing attitudes as fragrance. The orientation of the Rhodia perfumer is, therefore, directed not to *you* as the manufacturer, but to *your* customers. This attitude—backed by unique resources, skills and experience—has made Rhodia a valued partner to many leading toiletry and cosmetic houses. We suggest a similar association can be rewarding to you.

RHODIA INC., 60 East 56th Street, New York 22, New York, Telephone: PLaza 3-4850.

Rhodia

American Perfumer
MAY • 1961
VOLUME 76 NO. 5

What Canadian Customs Affect the Cosmetic Industry

BY P. P. LAST

Administrative Assistant to the Deputy Minister,
National Revenue, Canada

IN ORDER FOR A U.S. SUPPLIER of toilet goods, or materials for the manufacture of toilet goods, to render the best possible service to the Canadian trade it is necessary for him to become conversant with Canadian import requirements.

Cosmetic products and devices, in general, come under the control of the Canadian Department of National Health and Welfare. In some cases, release certificates must be obtained from the District Food and Drug Inspector before the Collector of Customs and Excise may release the shipment to the importer. In other cases, after samples have been taken, the remainder of the shipment may be released. In yet another category the products may be released without being referred to the Food and Drug Inspector.

An explanation of the application of the Canadian Food and Drugs Act and regulations made under this Act cannot be briefly dealt with in an article such as this. But if you are contemplating shipments to Canada of products which have not already been considered by the Department of National Health and Welfare, Food and Drug Directorate, you may obtain information in advance and thus avoid delays when the shipment enters Canada. You must submit full information about the product, including samples, labels and advertising material to the Food and Drug Directorate, Department of National Health and Welfare, Ottawa, Ontario, Canada. It will be of assistance to your Canadian customer if you will supply him with information so obtained for presentation to the Collector of Customs and Excise at the port of clearance.

All shipments entering Canada must be declared to Customs by the importer or his agent. Custom houses are located at most border crossing points and in most sizeable communities inland. Shipments may be cleared at the border or at any Customs port convenient to the point of destination. When it is intended that clearance be made at an inland Canadian port, the transportation company will arrange to have the shipment manifested in accordance with instructions given by the shipper. Upon arrival of the shipment at the port where clearance is to be made, the transportation company will advise the consignee or his authorized agent.

An important point to remember is that exact instructions should be given to the transportation company who will be handling the shipment. This will eliminate misunderstanding with regard to the Canadian Customs port at which the Canadian importer or his agent will present the necessary import entry and supporting documents to Customs.

Invoicing

Invoices in quadruplicate (form MA obtainable at good stationers is the form of invoice approved by Canadian Customs to cover goods sold prior to their importation into Canada from the United States) properly completed should be sent by the shipper to the Canadian importer or his duly authorized agent. Three copies, at least one of which must be signed in ink by the exporter, will be required for Canadian Customs and one copy for the importer's files. **It is important to remember that invoices prepared for Customs purposes must faithfully exhibit the transaction between the exporter and the importer into Canada and contain a true and full statement of the actual price payable for the goods, including cartons, cases and coverings of all kinds and all expenses incident to placing the goods in condition, packed ready for shipment to Canada.** No such invoice shall

state any discount other than those actually allowed to the importer.

Invoices covering gift sets should fully describe the contents, indicating which articles, if any, contain perfume and those items having an alcoholic content.

The U.S. shipper should ensure that all packages in the shipment are legibly marked and numbered on the outside and that the invoice shows the marks and numbers on the packages, the country of origin and the quantities and description of the goods in usual commercial terms. MA invoices must also show in the appropriate column the fair market value which, stated in general terms, is the price at which like goods are freely sold for home consumption in the home market under similar conditions at the time and place of shipment in the currency of the country of export (U.S. dollars in the case of U.S. exporters). Also the selling price(s) to the purchaser in Canada extended to total amount in the currency of settlement must be shown.

All trade discounts allowed the purchaser must be shown on the invoice in the selling price column. These may also be indicated in the fair market value column if they are allowed in the home market in the ordinary course of trade under the same conditions that apply to the transaction between the shipper and the Canadian importer. Cash discount terms should be shown on the invoice but deduction should not be made from the values for cash discounts.

The invoice must also contain a statement with respect to the payment of freight charges in order that the actual selling price to the purchaser in Canada may be determined. This is required because, if freight is prepaid and not charged or is allowed to be deducted by the Canadian importer on settlement, it has the same effect as reducing the selling price to the importer.

An additional statement is required on the invoice indicating whether or not freight prepaid and not charged, or allowed to be deducted by the importer on settlement, is similarly dealt with in the domestic market of the exporter.

If allowances made to Canadian importers do not agree with the U.S. exporter's domestic market policy, the Canadian importer becomes liable to special or dumping duty equivalent to the amount by which the value for duty, as determined by Canadian Customs, exceeds the net selling price after taking allowances into consideration.

It is important to note that where freight allowances are made or cash discounts given the details must be shown on the invoice. However, in such circumstances it is not permissible to deduct them and show only the net price or value on the invoice.

Marking

Although it is not necessary to mark finished toilet preparations with the country of origin, labels or containers imported by a manufacturer in Canada for packaging his manufactured product or repackaging bulk quantities, must show in a conspicuous place, where they were made. The position should not be covered or obscured by any subsequent attachments or arrangements and must be produced in as nearly indelible and permanent marking as the nature of the articles will permit. Another important provision of the Canadian law is that **no goods may be imported into Canada which are misrepresented as being made in Canada.**

Goods produced in the United States enter Canada under the Most Favored Nation Tariff. It is impossible to visualize the nature of all materials which might enter into the manufacture of toilet preparations, and the provisions under which finished products are dutiable are too extensive to be covered in a paper of this kind.

Although the payment of Canadian Customs duties is a responsibility of the Canadian importer, U.S. suppliers may obtain information regarding the duties and taxes which will apply to their products upon entry into Canada by submitting to the Deputy Minister, Customs and Excise, Department of National Revenue, Ottawa, Ontario, Canada, full details of the product and the condition and size of package in which it will be shipped to Canada. It is advantageous to submit samples for examination since the alcoholic content of toilet preparations has a bearing on their tariff classification.

Bona fide samples shipped to Canada for free distribution are subject to regular duties under the Customs Tariff but are exempted from special duty.

Excise taxes

Except in cases where the Canadian importer operates under license pursuant to the Excise Tax Act, there is, in addition to Customs duties imposed by the Customs Tariff on goods entering Canada, a sales tax of 11% which is payable on imported goods based on their duty paid value or, in other words, the total of the value for duty and the duty. There is also imposed on the duty paid value a 10% excise tax on "Articles, materials or preparations of whatever composition or in whatever form, commonly or commercially known as toilet articles, preparations or cosmetics, which are intended for use or application for toilet purposes, or for use in connection with the care of the human body, including the hair, nails, eyes, teeth, or any other part or parts thereof, whether for cleansing, deodorizing, beautifying, preserving or restoring, and including shaving soaps and shaving creams, antiseptics, bleaches, depilatories, perfumes, scents and similar preparations".

These taxes and the conditions under which the importer may claim exemption on imported goods are not of direct concern to the U.S. supplier, but are referred to here as an aid in understanding the factors which have a bearing on transactions between U.S. suppliers and Canadian importers.

Appraisal

Upon examination of import documents, the Canadian Department of National Revenue may find it necessary to correspond with U.S. suppliers to obtain additional information as to the composition of products and values of products imported into Canada. The cooperation of the supplier in promptly providing the requested information will be of great assistance to the importer in obtaining a final appraisal of the shipment. All such information is held in strict confidence by the Canadian Customs.

Problems Encountered

by U. S. Cosmetic Firm Operating in Canada

How do cosmetics companies with world-wide operations work out their manufacturing procedures in the United States and in Canada? How much technical and general assistance is furnished by the parent company? How much autonomy is there? How much direction?

These are just a few of the direct questions we put to a leading United States cosmetics firm in an attempt to demonstrate the tremendous cooperation that we feel can and does exist with judicious planning. The cosmetics company interviewed has manufacturing and distributing operations in several parts of the world. The Canadian Company is its oldest, outside of the United States, and one in which independent operation, combined with integrated planning and execution, is highly efficient.

Produce where plant is

The *modus operandi* in the non-United States operations is that business must be done in the country of manufacture wherever possible. That is, raw materials for the finished products, containers, boxes, labels, any phase of the manufacture, must be done in the country in which a plant is located, unless facilities to produce the necessary quality do not exist or are in a formative stage. Plans and suggestions, of course, come from the main operation in the United States. Its long experience in planning and executing manufacture and sales is of great aid in the preliminary phases. These plans are to guide and assist, and to help maintain one company personality and quality of product throughout the world. The foreign operations are free to adopt the packaging, promotional, and advertising plans as is, or to adapt them to their specific needs.

Cooperation between Canada and the United States can be considered ideal. The theme in all aspects of the operation is business *in* Canada, conducted *by* Canadians. A representative of the company described for us in detail their methods in the areas of raw materials, glass and plastic bottles, boxes, cartons, and labels, promotional and advertising materials.

Specifications on all raw materials are set up by the United States Company. After they are approved, all foreign operations, including Canada, are advised. Canada is then free to obtain its own materials. *Wherever possible*, such materials are purchased in Canada. If one is not available, and the product must be purchased in the United States, it is done through a Canadian export-import dealer, and paid for in Canadian, not American, dollars. Colors and dyes are one example. **The certified colors required by the standard specifications set up in the United States are not available in Canada.**

Flint glass and aerosol bottles

The company policy of purchasing from and using local industries is well-exemplified by the procedure on glassware. "A number of years ago," said the company spokesman, "we initiated arrangements to obtain our glass in Canada. We prefer, of course, to purchase all of our glass there, but there is only one company that can make our flint glass, opal, and vinyl-coated aerosol glass. However," he continued, "negotiations are now in progress with two other Canadian companies, and it is our hope that our volume will be large enough to warrant their interest."

Opal glass is run only once a year in Canada, as the volume is not sufficiently large to warrant more. Thus, at a certain time of the year the future year's requirements are estimated, and a complete stock run. All of this work, then, is done by Canadians in Canadian installations.

If the glassware that Canada does not produce

were to be imported directly, the Canadian company would have to expend American dollars to buy direct from the United States. To support as closely as possible the effort to localize the Canadian operation, therefore, all purchases from the United States are handled through Canadian importers and jobbers in Canada. Thus, the Canadian group does not spend American dollars for glass. It buys from the importers for Canadian dollars.

Many United States cosmetics companies with foreign operations use this same procedure. It is an effort to cooperate with the Canadian government in its attempts to keep track of American dollar expenditure. The government need talk to one exporter-importer only, rather than to ten or twelve different United States companies. And, business is being done in Canada with Canadians.

Decoration of the glassware is an area of special adaptation. Although the Canadian branch prefers to duplicate United States planning and design, this is not always possible. Thus, the Canadian company may vary the design slightly, if necessary, rather than purchase in the United States. All of this has as its aim the best possible planning and execution *in* Canada.

The blowing of plastic bottles is a fairly new art. The cosmetics company operated initially via Canadian exporter-importers, at the same time encouraging establishment of Canadian firms to do the manufacture. As a result, several Canadian companies have been organized, completely staffed by Canadians. All plastic bottles now are purchased from these firms.

Plastic packaging

The design and molding of plastic packages again is planned and advised by the United States. "Wherever possible, however," said the company representative, "we buy molds and do the molding in Canada. If that is impossible, we transfer molds across the border and mold there. Such transfer is not considered 'export'. The molds are 'on loan' for a stated period.

"At present," he continued, "we are trying to work out an arrangement with each of our United States molders so that he will have an alternate in Canada. This *does not* necessarily mean a Canadian branch of the same company, but a Canadian firm with approximately the same potential, so that transfer of molds and information may be simplified. Such a system is already in effect with our folding cartons, set-up boxes, and labels."

Folding cartons, boxes, labels

Most labels and folding cartons are purchased in Canada. Quality is superb, and planning well-organized. A package design is developed in the United States, with full knowledge on the part of the Canadian Company. At the same time, the main company is told which Canadian manufacturer will do the finished package. From this point on, the United States and Canadian manufacturers work together.

The United States firm supplies to the Canadian, as soon as definitely approved, the various elements that will aid in Canadian manufacture or adaptation. That is, color proofs, dummies, and, finally, a duplicate set of reproduction material. Such repro material includes progressive proofs, complete specifications, ink samples, and embossing dyes, if necessary. All these items are part of a "kit" for which the Canadian manufacturer eventually pays the U.S. manufacturer on a cost basis. It is in no way a "profit" item; it is merely the result of an excellent working relationship between United States and Canadian manufacturers.

"This did not just 'happen'," our spokesman told us, "it is the result of a conscious and continuing effort to overcome any obstacles or misunderstandings. Two years ago," he related, "we held a general conference here in New York. We invited Canadian manufacturers, purchasing agents of our Canadian Company, United States manufacturers, and purchasing agents of our United States Company. The purpose of the meeting was to work out any difficulties face to face. I am delighted to say," he continued, "that as a result, the United States and Canadian manufacturers are working out 95% of any problems without our even being involved!" This is an enviable situation. "Interestingly enough," he stated, **"these manufacturers are not, in general, branches of United States companies with whom we are dealing. These are competitors cooperating to produce the best result for us."**

Promotion and advertising materials

The United States Company works totally with Canada on preliminary promotional and advertising plans and progress. Canada, then, adopts or adapts them to its own use. Layouts, artwork, copy, mechanicals, ektachromes all are made available. This is especially important because of the bilingual situation in Canada. If United States material is used, it must be translated and altered to fit the French publications.

"From a cost standpoint," the company spokesman said, "it obviously would be uneconomical to repeat all photography and typesetting in Canada. However, 95% of our printing is done in Canadian plants by Canadian printers on Canadian paper, and all pieces are mailed in Canada. Printed material is imported only if it is a very special one for which facilities are not available in Canada."

At this writing, there is no direct contact between the United States printers and their Canadian counterparts. Based on the company's successful experience with box and label manufacturers, however, a joint meeting is planned in the near future. United States printers and purchasing agents will confer with Canadian printers and purchasing agents on problems that may exist and means to simplify present procedures. This, again, will be cooperation between independent suppliers to produce the best results for the Canadian cosmetics company *in* Canada.

"That is our story," said the company spokesman. "We appreciate the value of independent operation in our foreign companies, and we do everything to develop it. We do not wish our Canadian operation, in particular, to be 'directed' by the United States. We wish to guide and assist and provide whatever might not be available as yet in Canada. We wish to see Canadian cosmetics, made by Canadians, for Canadians, and distributed by Canadians throughout Canada."

Cosmetic Relations

between Canada and U. S. A.

BY J. P. STEWART

Sales Manager, Cosmetic Division,
Charles Albert Smith Limited, Toronto

WE HAVE BEEN supplying Canadian cosmetic manufacturers with many of their raw materials for over thirty years and I have, as a result, enjoyed a pretty close relationship with a very broad segment of the industry here.

In the first place, the cosmetics sold in Canada are those products and brands which originated somewhere else—England, France and U.S.A. I can think of no leading product on the Canadian market which was developed here and first put on the market here. The reason is quite simple. Our population is about 17,000,000 and is almost completely exposed to advertising from the U.S.A., through magazine and television, at virtually no extra cost to the U.S. advertiser. In view of the competition that exists in the cosmetic industry, the position of a strictly Canadian firm is hopeless.

Therefore, to reap the benefits from what may be termed a prepared market, the foreign company has several alternatives. The sales manager can appoint an agent, or agents, to import and sell his products in Canada. He can set up a Canadian marketing subsidiary to do this. He can have his products manufactured in Canada on a custom basis, or the firm can set up its own manufacturing facilities through a Canadian subsidiary and sell through agents, or through its own subsidiary. We can point to examples in Canada of each of these alternatives.

Because of our import duties, it is certainly cheaper to manufacture here than to import the finished goods; however, before rushing into this, a U.S. firm should obtain competent advice on both Canadian and U.S. corporation taxes.

Most of the leading U.S. brands of cosmetics are available in Canada and are being manufactured here. However, there is much variation in the quality control method exercised by the parent firm.

The most simple, but probably not the best, method is for the parent company to specify all the raw materials to be used, and even to supply these raw materials and to handle directly quality control. This is often the most expensive method. It is seldom wise to limit a manufacturer to one raw material source—particularly when that source is not a local one.

Chemicals and raw materials from most parts of the world are readily available in Canada. While it is true that U.S. raw material and chemical producers are represented, it is also true that supplies from European and British sources are available here at prices which are often lower than the American supplies. Where supplies of Canadian manufacture are available, they are generally cheaper in price because of tariff protection.

The point that the parent company should bear in mind is that the U.S. tariff is such that where there is U.S. production of raw materials, foreign competition is pretty well kept out of their home market.

It would, therefore, seem wise for the U.S. parent to give the Canadian manufacturers as much freedom as possible in the selection of raw material sources. If this means setting up testing and control facilities in this country, it will usually save money and result in better service. In most cases, it probably pays to give some control on quality and standards for finished production.

While Canadian buying habits are strongly influenced by U.S. advertising, particularly in Cosmetics, Canada is a separate market and must be treated as such.

WHAT is the CANADIAN MARKET?

BY JACQUES PARENT
Vice President, Familex Products Limited
Montreal, Canada

THE DEMAND CREATED in Canada by advertisements which appear in the popular American magazines and reach into nearly every home in this country, challenges the Canadian manufacturer and distributor of cosmetics to satisfy this demand with lines of modern products measuring up to definite American standards of quality and presentation.

It is evident, that in order to succeed, and to keep his place in the market, the Canadian manufacturer or distributor must keep a weather-eye on the American industry.

At this time, when unemployment is at a high level, and, in our belief, vigorous commercial nationalism should prevail in Canada, the manufacturer who would decide to acquire his supplies entirely from Canadian sources would condemn his enterprise to sure failure.

Packaging is big problem

The number one problem facing the producer in Canada is: PACKAGING.

Although here in Canada we have excellent manufacturers of glass bottles, it is a fact that the American suppliers can offer a superior selection of containers with more detailed and delicate appearance and construction.

One of the reasons for the inadequacies of the Canadian supplier is the limited number of sources—there are only two large companies—their volume business coming from the soft drink, alcoholic beverage and food products manufacturers. They are geared to this type of products and offer only stock bottles for the cosmetic trade which are, in many cases, not sufficiently attractive.

The Canadian Cosmetic Manufacturer who wishes to offer a varied and attractive product has the alternative of absorbing the high cost of custom patterns or getting his bottles from U.S. sources.

Most of the time, one can find on the American market attractive and reasonably priced jars and bottles, stock items, which are made to satisfy the taste and demand promoted by U.S. publicity in Canada.

While the majority of American manufacturers are eager to do business with Canadian producers, a few may be hesitant, and a very few may be reluctant. Also, one has to consider the added cost of importing containers from the U.S., where transportation, customs duty and a larger inventory brings up the unit price quite a bit. The larger inventory is necessitated by delays in deliveries, and, in some cases, this means a waiting of 4 or 5 months.

When we use conventional Canadian bottles, we try to compensate for the lack of glamour in the shape by a more elaborate decoration such as gold or ceramic motifs. We have our own silkscreening department with all the latest process equipment, namely: infra-red tunnel-conveyor, gold and ceramic color firing kiln, photography department and silkscreen preparation section.

While glass containers are creating a serious problem, we are happy to say that where plastic containers of all kinds are concerned, Canadian manufacturers are able to fill our requirements. Their stock containers are modern, attractive and they need not be envious of their American counterparts. Therefore, all of our purchases in this type of containers are supplied by Canadian manufacturers.

Aerosol containers and valves

In aerosols, we have our own aerosol line, but the valves are purchased in the U.S. The Canadian Industry has not produced any until now. Metal containers are bought from the U.S. and domestic sources. At present, only the seamless type is obtainable here. Because no Canadian manufacturer can supply us with aerosol stock bottles for Cologne or Perfume, we buy these satisfactorily from the U.S.

Another problem is the supply of essential oils and compounds. These are being purchased both in Canada and the United States. The richness of the compounds and their appeal to our customers dictate our choice. The taste of our French-Canadian clientele has top priority with us. This clientele constitutes the greater part of our market, and their preferences often differ considerably from that of the American or English-Canadian woman. Most of the well-known American or European houses are being represented here. However, there are only two or three firms manufacturing essential oils and compounds in Canada on which we can rely for fast service. In the case of firms having no subsidiary company or local representative, or Canadian branches of American firms not manufacturing in Canada, the delay in deliveries is about the same.

The other raw materials are always bought in Canada unless they are absolutely unobtainable here.

U.S. firms help

Quite a few representatives of the American firms visit us and it is always a pleasure for us to meet them. They are most courteous and ready to discuss our particular problems. They draw our attention to the latest novelties which are not yet available on the Canadian market; submit excellent formulae which are the starting point of our research. This often makes it possible for us to be ahead of the local market and only a bit behind that of the United States. The majority of the American manufacturers are interested in, and considerate toward, our special situation and we feel that without their service it would be very difficult for us to obtain our supplies satisfactorily from other sources.

Founded in 1928 by the late and well-known Romeo Parent, Familex Products Limited is a direct-selling organization. It manufactures over 250 beauty, health, household, and farm products. The company has two subsidiaries specializing in Treatment and Beauty preparations which are sold directly in the home by cosmeticians and beauty experts.

Patents—Valuable Research Tools

BY BERNARD J. CANTOR
Patent Attorney, Detroit

PATENTS ARE A VALUABLE, but frequently overlooked, tool for research. In the past century, almost three million patents have been issued by the United States. Many more patents have been issued by foreign governments. This group of patents forms a technical encyclopedia and technical history far more complete than and, in fact, unequaled in other technical literature.

In beginning any sort of research project, it is, of course, desirable to study the previous work done by others and to use that work as the base upon which future work is built. In patent work, we all too frequently find—after expensive research has been completed—that others had previously solved the problem. In any event, the best place to begin research is with all previous knowledge at hand.

Patents can bring the researcher up to date. Since the cost and time required to obtain and to study prior patented history is relatively nominal, the researcher who fails to use this tool puts himself and his company under an unnecessary handicap.

Lack of understanding

Probably the major deterrents to the use of patents as research tools are a lack of understanding of how to read and understand them (they can be formidable looking documents) and of how to locate and obtain them. However, these difficulties can be readily eliminated with a little knowledge.

A patent is a legal document which grants an inventor the right to exclude others from copying his invention for a limited period of time—seventeen years, in the United States. But a patent is also a technical description of the article, machine, process or chemical composition which it protects. In order to receive a patent, the inventor must first describe his invention to the government. When the patent is issued, this description is opened to the public; the word "patent" means open.

Reading a patent

Of course, a patent is not as easy to read as a comic book. Nor is it the type of document which is as interesting and engrossing as the latest novel. It is in a sense a scientific or engineering treatise, not much different in readability than other equally complicated scientific or engineering texts.

It may look somewhat strange with old-fashioned drawings, long sentences, odd phraseology, all complicated by an appearance of being a legal document. Yet, a legal document is exactly what it is. Its form, words and phrases have, over the years, come to take on certain legally accepted interpretations. While it may be that it could be simplified, modernized, or slicked up, it must be remembered that the law does not change as rapidly as the subject matters described in these patents. Hence, a technician reading a patent would be well advised to ignore the distractions of form, grammar, wording, etc., and to get down to the meat of the document, namely, the subject matter.

If the subject matter of the patent can be illustrated, drawings are required. There may be one or more sheets of drawings, the specification may be short or

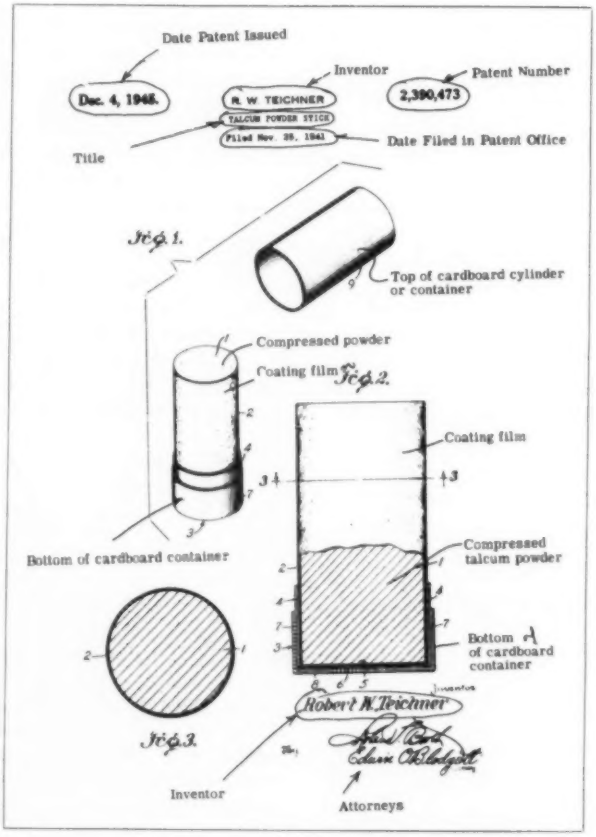


Fig. 1. Drawing of a typical patent

long, and there may be one or many claims. However, regardless of the number of pages involved, patents follow a fixed format so that the descriptive items which appear in one patent will likewise be found in the same order in any other patent.

Fortunately, similar printed formats or styles are followed by almost every country that issues patents so that if a researcher gets accustomed to reading United States patents, he will have no difficulty, except for the different language requirements, in reading patents of any country.

Referring to the drawing, printed at the top edge, left corner, is the date the patent was issued; and at the right corner, the number of the patent. Between them is the inventor's name, the title he gives to his invention and the date the patent application was filed in the United States Patent Office.

The various figures of the drawing show different views of the structure involved and the parts illustrated are given reference numerals.

The particular patent illustrated relates to a talcum powder stick which a man can use to apply talcum powder to his face, either before or after shaving. It includes a stick of compressed talcum powder surrounded by a coating film, which prevents the stick from crumbling, and a cardboard container. Thus, in the drawing, Fig. 1 shows the stick with the top of the container removed; Fig. 2 shows the stick, partly in cross-section; and Fig 3 shows a top view.

In the specification, the patent number and date of issuance again appear at the top, followed by the title, inventor's name and address, and the name of the assignee; that is, the owner of the patent, if the owner is someone other than the inventor.

Beneath that appears the date the patent application was filed in the United States Patent Office and the serial number given to the application before it became a patent. Following this is the number of claims, in this case twelve, and the class and sub-class (Cl. 206-56) to which the patent is assigned.

There are about four hundred major classes, broken down into about fifty thousand sub-classes, into which patents are sorted. This classification amounts to a large number of pigeon-holes, each holding patents relating to a specific subject matter. This classification makes it possible to search out and find the patents after they are issued. For example, Class 206 relates to Receptacles and Packages and is divided into a large number of sub-classes. Sub-class 56, relates to dispensing type packages.

The opening paragraph of the specification sets forth the subject to which the invention relates. The next paragraph generally explains the problem which the invention is supposed to solve. This is followed

Fig. 2. The first page of the specification of a patent.

ABOUT THE AUTHOR

Bernard J. Cantor was graduated from Cornell University in 1949 with a Bachelor of Mechanical Engineering degree and from George Washington University in 1952 with a Juris Doctor. He served as a patent examiner of the United States Patent Office from 1949 to 1952. Now a member of the firm of Cullen and Cantor, Detroit, Michigan, he specializes in patent, trade-mark, and unfair competition law.

by the objects or purposes of the invention and, in this case, a brief description of the structure. After that there is a brief description of each figure of the drawing. The remainder of the specification describes the invention, how it is used, materials and processes involved, etc. Here, the various parts of the structure are described by reference to the numerals which appear in the drawings. This is a typical format and can be found in practically all patents.

The claims

The claims follow the specification, and, as mentioned, each claim is a separate paragraph, by tradition a single sentence, which delineates the invention. It also sets forth the essential elements of the invention.

The claims are actually the patent grant and thus, infringement is determined by whether or not the words of the claims "read on" or describe the infringing device or process. If the infringing device or process omits any one or more of the necessary elements of the claim, there is generally no infringement of that claim.

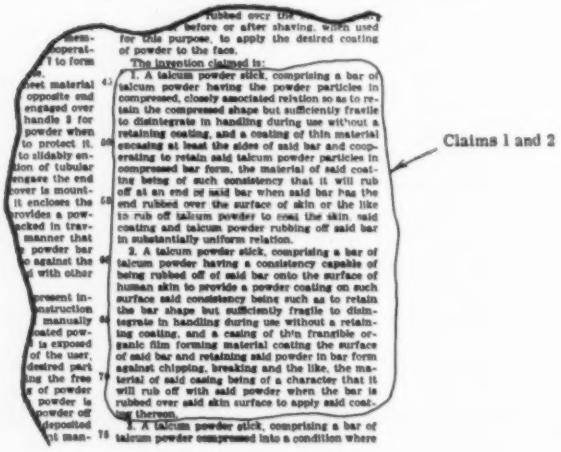
Hence, in research, the drawing and specification are useful as a text book, that is as a teaching or learning or reference medium. But, the claims, if the patent is still alive, act as a guide or fence to show what area should not be copied or used. However, since infringement of a patent is a legal question involving many complicated legal factors, the researcher would be better advised to ignore the claims altogether and leave that area to his patent lawyer. Of course, if the patent has expired, then there can be no infringement and everything disclosed in the patent can be used by the public.

References cited

On patents issued during the last ten years, there is usually a list of patents called "references" printed on the last page, after the claims. The particular patent illustrated was issued in 1945 and thus the list does not appear.

These "references" are the patents which the Patent Examiner in the United States Patent Office indicated as being closely related to all or part of the subject matter described in the patent. Thus, to the researcher these are frequently a source of additional pertinent information, information which preceded the particular patent at hand. In a sense, this is like a bibliography at the end of a technical paper.

Fig. 3. Part of patent showing claims



How to locate patents for research use

Once a chemist or engineer finds that he can read a patent and can use it for research, his next question almost invariably is: "How can I get my hands on the patents which will help me?"

There are several answers to this question. First, once the number of the desired patent is known, one can send that number and twenty-five cents to "The Commissioner of Patents, Washington 25, D. C."

Second, to locate patents of interest for a research problem, one can make a search through the classified or sorted out patent copies located in the public search room of the Patent Office in Washington, D. C. There is no other place in the country where all of the patents are filed together and arranged by *subject matter*. The public libraries in many of the larger cities maintain copies of all issued patents, but in numerical order. This, of course, is not a practical file for use in locating patents by subject matter, but can be used once the patent number is known.

The search through the Patent Office classified files can be made by the researcher, if convenient, or it can be made through any patent attorney. The expense is usually quite nominal and the results available quickly, often within a week or two.

Another way to locate patents is through the Chemical Abstracts which many public libraries keep on their shelves. In addition, the Patent Office makes available, upon request, printed bulletins describing its different patent classifications, and the lists of patents within each classification. At times, it may be desirable to order copies of all of the patents in one of the few sub-classes which relate to the specific research problem. Generally, however, this is inefficient since the sub-class may include several hundred patents, most of which are not pertinent to the specific problem. A search made in the Patent Office search room would probably cost less and at once separate the wheat from the chaff.

Many businesses find it desirable to subscribe to the Patent Office Official Gazette, a weekly publication, which gives an abstract of all of the patents issued that week. While there are about one thousand patents issued each week, the Gazette can be scanned quickly to locate patents of interest to the reader. Copies of these patents can then be ordered from the Patent Office. The subscription price for the Official Gazette is $30.00 per year, and it can be ordered from "The Commissioner of Patents, Washington 25, D. C."

A review—
Zinc Oxide Ointment

BY H. GEORGE DEKAY
Professor of Pharmacy, Purdue University, School of Pharmacy

A DEMAND FOR A SMOOTHER and more elegant preparation of zinc oxide ointment has been frequent since its early introduction into pharmacy and medicine. We have had the same request from our physicians of our Student Health Service at Purdue that the preparation needed changes to improve its spreadability and effectiveness. It seems, therefore, that a comprehensive review of this preparation would be both timely and beneficial at this time.

A study of the Encyclopaedia Britannica 1957 reveals the following: "Zinc oxide occurs in nature in combination chiefly as the ore zinc blende or spalerite and Smithsonite or calamine. Zinc blende is the chief ore which generally contains in addition to zinc sulfide, small amounts of iron, silver and cadmium sulfides. It may be accompanied by various other substances. It seems to be widely distributed and in abundance in Germany, Czechoslovakia, Roumania, Belgium, United States and in England."

Smithsonite or calamine is second in importance as a source for zinc. It almost invariably contains in addition to zinc carbonate, the carbonates of iron, manganese, cadmium, magnesium and calcium and may be contaminated with clay and the oxides of iron, galena and calcite. This ore occurs in Spain, Silesia and in the United States. China still has large deposits of calamine but shipping costs make it exorbitant to use. The supply of zinc up to 1833 came almost entirely from Germany; Russia entered into the picture in 1833, while Belgium began producing in 1837, England in 1855 and the United States in 1873. The principal producer of zinc today is the United States.

We further learn that zinc oxide is manufactured for paint by two basic processes. The ore is mixed with coal and heated to high temperatures. The zinc metal is volatilized and reoxidized in an air blast which gives a good zinc oxide product. It may also be formed by oxidizing the vapor given off by boiling zinc metal. "This gives a zinc oxide with a better color, a finer texture and a greater covering power."

Zinc oxide may also be prepared by combustion of the carbonate. This gives a product with a slight yellow shade. Crystalline zinc oxide can be obtained by heating zinc nitrate or the zinc chloride in a current of steam.

Brunner (1) states that in 1862 the oxide was prepared by heating two parts of zinc sulfate and one part of anhydrous carbonate of soda then washing the end product with water and drying prior to use. Rosenstadt (2) in 1874 draws attention to the variability of commercial calamine. It varies in color, solubility and in its reaction to acids and alkali. The product from England met the Russian pharmacy product more closely in color while that from other areas was bluish, brown, green brown and yellow.

Koehler (3) in 1878 encountered difficulties in preparing zinc oxide ointment from the commercial zinc oxide and suggested that the pharmacist prepare his own oxide as needed. He recommended that zinc carbonate be prepared by precipitating it from a solution of zinc sulfate by the addition of sodium carbonate. The precipitate should be washed thoroughly, dried after filtration and then transferred to a crucible and heated for two to three hours, and, when no more effervescence was obtained when the residue was added to acid, it was ready for use. When the oxide is heated too long it would be gritty. The product is then stored for future use.

Elborne (4) observed that white zinc oxide which was obtained by combustion of the metal appeared to be in disrepute because it was gritty and liable to be contaminated with particles of metallic zinc. These reports did not bear out his findings because he had given preference to it over the yellowish zinc oxide obtained from the precipitated carbonate by calcination.

Rordorf (5) commented on the presence in Swiss commerce of a zinc oxide corresponding to all of the tests of the Pharmacopoeia but having physical properties different from those of the ordinary types of the oxide. It was a light, loose powder that produced a lumpy ointment which could not be rubbed smooth by ordinary means.

It seems that the chief source of the zinc oxide used in commerce at the present time, if slightly yellowish, is obtained from the calcination of zinc carbonate while the pure white product is obtained by the oxidation of the metallic zinc which has been volatilized by heat and then oxidized in a stream of air.

A study of the United States Pharmacopoeias from 1820 to the present time reveals the following con-

cerning the zinc oxide which was used in pharmacy and medicine.

USP 1820: The oxide of zinc, formerly flowers of zinc, was prepared by heating a large crucible to redness then adding about one dram of zinc metal. The metal soon flamed and was converted into white flakes, which were removed from time to time with an iron spatula in order to speed up the combustion. When the metal ceased to flame the zinc oxide was removed and stored in a bottle while a new piece of zinc metal was added to the crucible. This was continued until the desired amount of zinc oxide had been prepared.

USP 1828: Used the same procedure.

USP 1830: One pound of zinc sulfate was dissolved in a sufficient amount of distilled water and then liquor of ammonia was added, about one pint, or a sufficient quantity until the reaction was completed. The water was decanted and the precipitate was washed with distilled water and dried on a sand bath.

USP 1831: Used the same procedure.

USP 1840: One pound of zinc sulfate was dissolved in twelve pints of water and to this was added six and one half ounces of ammonium carbonate dissolved in an equal quantity of distilled water. The precipitated carbonate was filtered and thoroughly washed after which it was calcined to remove the carbonic acid. This oxide or zinc was a white powder which was insoluble in water but soluble in sulfuric and chlorohydric acids without effervescence.

USP 1850: One pound of precipitated zinc carbonate was exposed to a strong heat in a shallow dish so as to drive off the carbonic acid. There was no mention of how the zinc carbonate was obtained. The description of the zinc oxide thus obtained was the same as previous revisions.

USP 1860: This Pharmacopoeia recommended that twelve Troy ounces of zinc carbonate be exposed to a low red heat until the water and carbonic acid had been completely removed.

USP 1870: The same procedure was given as that listed in 1860. The oxide was described as a yellowish white powder, insoluble in water, but soluble in dilute sulfuric acid and muriatic acid without effervescence.

USP 1890: Zinc oxide was defined as an amorphous white powder, without odor or taste. It gradually absorbs carbon dioxide from the air. There was no method of preparation given for the oxide.

USP 1900: There was no method of preparation but there was a purity rubric for the zinc oxide which now made its first appearance. Zinc oxide should not contain less than 99.5% of pure zinc oxide. It was defined as a very fine amorphous white or yellowish white powder free from gritty particles, without odor or taste. It gradually absorbed carbon dioxide from the air.

USP 1910: Zinc oxide was now required to contain, when freshly ignited, not less than 99% of zinc oxide and was described the same as in previous revisions.

USP 1920 to *USP 1960:* The definition and description has remained constant through these revisions.

Zinc oxide in use today is prepared for the most part from the calcination of the carbonate. The chief use of zinc oxide in industry is as a paint pigment, for making zinc oxide ointment, as a face powder in cosmetics or as a component of a face powder. According to Goodman and Gilman (6), zinc oxide is a mild astringent and antiseptic in action. It is used in skin diseases and infections such as eczema, impetigo, ringworm, pruritis and psoriasis. There has been some use, according to Jackson (7), of zinc oxide in doses up to 10 grains for nocturnal sweating of phthisis and in acute rheumatism with some degree of success.

The principal use in pharmacy is in the artificial calamine, where it is colored by the addition of small quantities of jeweler's rouge and in the form of the ointment. We again refer to the United States Pharmacopoeias in order to show the changes which have been made in the official formula since the introduction of our first official compendium. The following table clearly shows the composition of the formula for zinc oxide ointment from 1820 to the present USP XVI.

Formula composition for ZINC OXIDE OINTMENT U.S.P. 1820 to 16

U.S.P.	1800	1			2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lard	5	5	5	½#	6	6	1[a]												
Impure ZnO	1	1	1	1 oz.	1	1	80[b]	80[b]	20										
Benzoin Ointment								400[b]											
Benzoinated Lard									80	800	800	800							
Zinc Oxide										200	200	200	20	20	20	200	200	200	200
Petrolatum													65						
Paraffin													15						
Liq. Petrolatum														10			150	150	150
Wool Fat														5	7	70			
White Wax														5					
White Petrolatum														60					
White Ointment															73	730	650	650	650

[a]Troy oz.
[b]Grains

The directions for compounding the formula have changed with each change in the official compendium. From 1820 to 1870, the zinc oxide was mixed with the lard according to the art. The formula changed in the fifth revision and the zinc oxide was mixed with benzoin ointment until a smooth preparation was obtained. The formula of the sixth revision used benzoinated lard and the zinc oxide was levigated with part of the melted base, then incorporated into the balance of the base and mixed thoroughly.

The USP VII recommended that the zinc oxide be sifted through a number 20 sieve upon the surface of the melted benzoinated lard and then thoroughly mixed until it congealed. This was again changed in the USP VIII where the directions required the zinc oxide to be levigated with part of the melted base and then the balance of the base previously melted was incorporated, after which the melted ointment was strained and thoroughly stirred until congealed. This procedure was followed in USP IX but with the change in formula of the USP X, the directions were again changed. The zinc oxide was levigated with part of the melted base and then incorporated into the balance of the melted base and after thorough stirring was again strained and stirred until it congealed.

Wool fat and petrolatum added

There was another change in the formula of USP XI and the zinc oxide was now levigated with a mixture of wool fat and liquid petrolatum after which it was incorporated into the wax petrolatum mixture. The melted product was strained and stirred until it congealed. The USP XII was changed again and the zinc oxide was levigated with liquid petrolatum and then incorporated into the white ointment. There was another change in the USP XIII and the liquid petrolatum was omitted and the zinc oxide was levigated with wool fat and then incorporated into white ointment. USP XIV drops the wool fat and the formula has remained the same since then.

Smooth product a problem

The problem confronting the compounder was that of getting a smooth finished product. Many suggestions were made to produce the desired zinc oxide ointment. It seems that this was one of the major problems which has confronted the producers of the completed product since its introduction into American pharmacy.

Few official formulae have elicited as much comment as that for preparing this ointment. It seems that the problems have been those of preparation of a satisfactory end product capable of being used on injured surfaces. The zinc oxide may have been impure, gritty, grainy or in some respects not a fine powder. The second problem was one of getting this powder incorporated as a smooth paste. In this respect many different methods have been resorted to in an effort to produce the desired results. The third problem was that of the base being too stiff, too difficult to obtain or otherwise therapeutically unsound.

Zinc oxide ointment has been with us for many years. The USP originally used an impure form of powder as previously discussed, and one can note the many changes which have been made in solving this problem. Our second problem involved the techniques in the manufacture of zinc oxide ointment. It seems to us that a good review of the work done in this regard would be of value, and we have therefore considered these in a chronological order since 1869.

We find many references to zinc oxide ointment. Jester (8) reports on benzoinated oxide of zinc ointment in which he prepared the ointment using 30 Troy ounces of lard to which 5 fluid drams of tincture of benzoin had been added, and this mixture heated to the boiling point of the alcohol permitting the evaporation of all the solvent. Five Troy ounces of zinc oxide, which had previously been reduced to a fine powder so as to pass through a number 60 sieve, were added and stirred until the ointment congealed. He reported that a nice smooth ointment could be prepared.

Kemp's formula

The same year the committee on unofficial formulae (9) reported on the following formula for benzoated oxide of zinc ointment, (Kemp's Formula).

"Take of lard and olive oil of each	5 Troy ounces
White wax and spermaceti of each	2½ Troy ounces
Oxide of zinc	2½ Troy ounces
Pulverized gum benzoin	½ Troy ounce
Mix and make according to art."	

No further directions were given.

Mansfield (10) recommended that benzoated oxide of zinc ointment be prepared by melting together on a water bath equal parts of oil of sweet almonds and white wax, then adding 1 dram of tincture of benzoin to the quantity necessary to make 1 ounce of ointment. He suggested testing to determine when the alcohol had evaporated and then adding 80 grams of finely powdered zinc oxide. The mixture was then removed from the water bath and stirred until cold. An elegant preparation was the result.

A report on the Progress of Pharmacy (11) makes the following comments: "Few official formulae have elicited as much comment as that for preparing zinc oxide ointment." The author suggested that if 25 drams 2 scruples of zinc oxide was triturated with 1 ounce of sweet oil on a marble slab with an ordinary flat iron, a smooth mixture will be obtained. He then heated a mixture of simple cerate 3 ounces and 9 ounces of lard to a temperature of 100°F. The smooth mixture of zinc oxide was incorporated into the melted base by means of a limber spatula and stirred until the mass cooled, after which a mixture of 3 ounces of cold lard and 1 ounce of tincture of benzoin was added and the entire mixture stirred until smooth. This was the first appearance of the new pharmaceutical tool, a flat iron.

Ruan (12) stated that he had a process which would give a preparation free from gritty particles and of unequalled smoothness. There was a change from the usual procedures. He made a smooth paste on a slab with 80 grams of zinc oxide using ½ fluid

dram of water as his levigating media. This was incorporated into 400 grams of ointment of benzoin. He stated, further, that if larger batches were made, the batch would probably require heat to remove the excess water.

Hogan (13) found a method which had been suggested by A. E. Ebert to yield a satisfactory product. The lard was placed in a tin dish and melted over a spirit lamp or gas jet and when just melted, the zinc oxide was sifted through a fine hair sieve and intimately incorporated by using a glass rod or pestle. Tincture of benzoin was added to the mixture and stirring continued until the melted base had congealed.

Koehler (14) states that the difficulty encountered in preparing this formula was due to the commercial zinc oxide. He suggested that each pharmacist prepare his own by reacting zinc sulfate solution with sodium carbonate, then washing the precipitated carbonate followed by calcining the residue. The zinc oxide thus prepared was a finely divided powder and would make a smooth ointment. He preferred a paraffin ointment base to lard or benzoinated lard.

Glycerine and lard added

Fairthorne (15) prepared the ointment by first triturating the zinc oxide with glycerin in a smooth mortar and then incorporating the lard. He recommended the addition of 40 grains of wax per ounce of ointment in warm weather because it was too soft in temperatures of 75° to 95° F.

Rother (16) recommended a new formula with the method of preparation. The formula called for the following:

Zinc oxide	4	Troy oz.
Starch pulv.	½	Troy oz.
Spermaceti	½	Troy oz.
White wax	1	Troy oz.
Lard	14	Troy oz.
Balsam tolu	120	Grains

The zinc oxide was triturated with three fourths of the powdered starch and sifted through a number 80 sieve. The coarse portion which remained on the sieve was rubbed through with the remaining starch. The wax, spermaceti and ½ of the lard was melted and the remainder of the lard was gradually added. The balsam of tolu was added to the fused fat mixture and heat continued for 15-20 minutes; the temperature was not to exceed 60°C. The fluid portion was decanted and this poured upon the zinc oxide mixture with constant stirring until well mixed; then the stirring continued at frequent intervals until congealed. He further states that a magnificent ointment was obtained when he used white petrolatum instead of lard.

Williams (17) recommended a modified process for the ointment so as to obtain a firmer product than the official formula. He suggested triturating 5 ounces of zinc oxide with 4 ounces of glycerin until a smooth paste had been formed. The base was prepared by melting 1 ounce of white wax and gradually adding 15 ounces of benzoinated lard. The temperature was maintained at about 140°F. and stirring continued until the base began to thicken, when the zinc oxide mixture was incorporated and stirred un-

til thoroughly mixed. A smooth ointment was produced by this method.

Vigier (18) proposed a formula for zinc oxide ointment in which mucilage of tragacanth was used. This formula was as follows:

Vaseline	30 gms.
Zinc oxide	4 gms.
Gum tragacanth pwd.	2 gms.
Dist. water	10 gms.
Tr. benzoin	30 drops
Soap powder	25 Cgm.

The zinc oxide was triturated in a mortar with the vaseline. The tragacanth mucilage was prepared in a large mortar and to it was added the zinc oxide-vaseline mixture. The soap and tincture of benzoin were introduced and the mass was stirred, making a smooth ointment which was stored in closed jars.

Harding (19) reported on the manipulation of zinc oxide ointment. The zinc oxide was rubbed smooth in a mortar large enough to hold the completed formula. Hot benzoinated lard is poured in, a little at a time, with continuous stirring and worked until it becomes creamy and cold before adding a new portion. This is repeated each time until the formula is completed. This gave a smooth and creamy product.

Bradley (20) suggested a formula consisting of zinc oxide and white refined petrolatum in which the petrolatum was melted and a small amount was used as a levigating agent for the zinc oxide after which the balance of the petrolatum was added and triturated until cool. This made a preparation which was smooth and free from rancidity.

Alpers (21) recommended that the zinc oxide be first triturated to a smooth paste with a small quantity of lard oil. The required amount of benzoinated lard, together with a little wax to compensate for the oil used, is melted and then slowly added to the smooth paste and stirred continuously until complete addition and the ointment has congealed. The finished product gives a very satisfactory ointment.

Use a paint mill

The next recommendation (22) states that it was impossible to make a faultless ointment of zinc oxide by the USP process. If a person made large quantities the author suggested the use of a paint mill. He also suggested the use of sesame oil to levigate the zinc oxide prior to incorporation in the base.

Edel (23) reported that he had prepared zinc oxide ointment for years and stated that where large quantities of insoluble substances were present he used a paint mill to make a satisfactory product. He found that when zinc oxide is mixed with part of the melted lard and then run through a paint mill, the product could readily be incorporated with the rest of the base with stirring and a smooth satisfactory ointment could be produced.

Williams (24) now suggests an Improved Manipulation of Ointment of Zinc in which he suggests that a smooth paste could be made using castor oil in quantities up to 10 percent of the fat used. He first sifted the zinc oxide into a mortar and added hot castor oil to levigate the zinc oxide. After thorough mixing to get a smooth paste the balance of the base (90 percent benzoinated lard) is incorporated to make a perfectly smooth ointment without using heat other than warming the mortar prior to levigating the zinc oxide.

Williams (25) now calls attention to the use of a small churn which could be constructed from a tin can for securing smooth ointments. The process involved the melting of the bases then adding the zinc oxide and stirring prior to pouring into the churn. The mixture is now churned for a period of three minutes after which it is removed and the product will be as smooth as one prepared by normal means. The churning was started after the base begins to congeal.

Thomas (26) found that the official formula would yield a satisfactory product with a slight modification. He stated that the presence of water in lard was the probable cause of the difficulties encountered in the past and recommended the use of dehydrated lard. The lard was melted and benzoinated in the usual way and while in the melted state was thoroughly mixed with the zinc oxide and the entire mass reheated and then passed through a moderately fine gauze. The hot mixture was now stirred until cold. It might be necessary to add 5 percent white wax to withstand high summer temperature.

Levigate with almond oil

Gilmour (27) in discussing official adaptations and economics of BP processes states that if the zinc oxide was levigated with almond oil then incorporated into the melted lard and poured through a muslin strainer, the product formed would be a beautifully smooth and elegant ointment. He further brings out that if one objects to the use of a foreign product, the ointment can be made by levigating with the melted lard, but do not strain unless one wishes to do so.

Hall (28) suggested to melt about ¼ of the benzoinated lard and use it as a levigating agent for a good grade of zinc oxide. The mixture should be prepared in a large mortar. The balance of the lard should now be melted and incorporated into the levigated zinc oxide and thoroughly mixed until cool. Ointments, thus prepared, were beautifully smooth and even.

Caldwell (29) recommended the following procedure for the preparation of zinc ointment. About two-thirds of the lard containing the zinc oxide was heated for 3 or 4 minutes after melting then passed through a number 60 sieve into a suitable dish immersed in ice water. The balance of the lard was melted and passed through the same sieve. The two portions were mixed and then stirred until they congealed.

Cruse (30) found that a number of official ointments were intended for protective rather than systemic action and were more satisfactory when the animal or vegetable fat prescribed was substituted by vaseline or paraffin ointment and recommended those as an improvement to ointment formulae, especially zinc ointment. He further stated that ointments containing lard soon became rancid, so the physicians were requesting it to be freshly prepared each time. He also stated that, if a mixture of hydrous wool fat and paraffin ointment could be used in place of lard, one would get a permanently stable product. The

zinc oxide was triturated with an equal weight of glycerin, a few drops of tincture of benzoin was added to overcome the odor of lanolin, then the paraffin ointment was incorporated.

Egan (31) suggested that the zinc oxide be triturated with about 10% of oil of benne until a smooth paste had been formed, then melt the lard and incorporate with stirring until it congealed.

Jones (32) introduces a new idea as to the keeping qualities of zinc oxide ointment and stated that many previous papers had dealt mainly with manipulation or changes necessary to produce a smooth ointment and had recommended various oils in making a smooth paste. He found that ointments made with benzoinated lard formed granular masses upon standing and, therefore, there was a need for a change because the lard caused this granulation. He cites Cushing, who says "Emollient preparations promote the absorption by the skin of drugs dissolved in them because the fat mixes readily with the thin layer of oily sebaceous matter which covers the skin." He assumes, therefore, that zinc oxide, being insoluble, would not be systemic or act other than on the surface of the skin, and the base could be a combination of white wax 15% and petrolatum 65% of the total formula.

Ointment separates

The problem in zinc oxide ointment was a separation at the bottom of jars which had been stored for a year or more. The top was nice and solid and, as one began to take from the top, the more of the ointment taken out the softer the product. Jones thought that this might be due to a saponification of the acid components of the lard with zinc oxide. These saponification products could be separated with ether. An ointment was made and passed through a mill ten times, and it granulated. He concluded, therefore, that the base was wrong and that the new base would be effective.

Austin (33) reported that if one would tie a cheese cloth strainer over a cylindrical vessel and place the zinc oxide on the depression, a smooth ointment could be prepared by passing the melted benzoinated lard over this zinc oxide and by means of a spatula force the material through the cloth and continue to stir until congealed.

Hahn and Fischellis (34) call attention to the fact that lard was needed for food purposes during the war and the possibility of conserving lard by not using it in ointment of zinc oxide should be carefully considered. They claimed that petrolatum was superior to lard in making the USP zinc oxide and the ointment was smoother.

These authors (35) again reported on petrolatum and presented statistics from prescription files and opinions of physicians on the relative value of lard and petrolatum. Out of 32,319 prescriptions examined, 1,246 or 4% called for ointments of which 63% called for petrolatum, 18% for lard and 19% for wool fat or mixed bases. A check of 12 dermatologists showed that 6 preferred lard.

Sollman (36) reported that the USP Revision Committee had raised the question of the most suitable vehicle for zinc oxide. White petrolatum had been used extensively and there were fears that its

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therapeutic efficiency was affected. He ascertained from the American Dermatological Asociation by means of a questionnaire that the consensus was distinctly in favor of petrolatum and that it was superior in consistency, keeping qualities and absence of irritation, and it was equal to lard in therapeutics.

Clark (37) reported on the work done for the Medical Corp of the Army. He studied ointments of zinc oxide prepared with lard, petrolatum or wool fat type and found that the most satisfactory ointment was the one prepared with petrolatum 65, and zinc oxide 20.

Gerstner (38) reported that petrolatum possessed all the advantages and no disadvantage of lard because the value of the ointment depended upon the astringency of the zinc oxide.

The Medical Department of the Army (39) asked the assistance of the Council on Pharmacy and Chemistry of the AMA in selecting medicaments for the Army. Zinc ointment was one suggested for use. They found upon experimentation that (1) lard developed a disagreeable odor on standing, (2) yellow petrolatum produced an ointment that developed a color, (3) lanolin made an ointment with an unpleasant odor, (4) white wax gave an ointment which would shrink, (5) ointments made with lanolin and petrolatum separated and (6) ointments made with paraffin and white petrolatum gave an ideal ointment.

Product too stiff

Tagg (40) commented on the ointment of zinc oxide of the USP X and stated that the change from lard to paraffin and white petrolatum should prove more popular to the trade but semed to be too stiff. It could be improved by adding liquid petrolatum.

Nitardy (41) stated that the new formula seemed entirely too stiff to be satisfactory for general use and suggested a change in the amount of paraffin in the formula. Miller et al. (42) proposed a new formula for zinc oxide ointment because of a request from the Medical Department for an ointment which could be applied to bruised areas. The USP X formula was too stiff for general application in the Athletic Department. The authors, after careful study and experimentation using many different liquids for levigating the zinc oxide into a paste and then incorporating each in several combinations of an ointment base, arrived at the following formula which was submitted to the USP Revision Committee for consideration. The formula:

Anhydrous lanolin	34
Paraffin	34
White Petrolatum	612
Glycerin	120
Zinc oxide	200

The objection raised to this formula was that of using glycerin as the levigating agent.

A formula was presented by Jordan (43) which contained the Purdue base for ointments consisting of an increase in paraffin.

Anhydrous lanolin	34
Paraffin	64
White Petrolatum	578
Glycerin	120
Zinc oxide	200

The same objections were raised concerning the use

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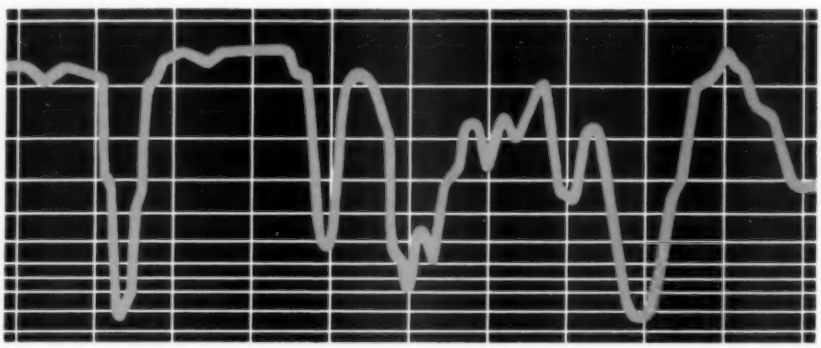

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of glycerin in the formula. In 1932 Bischoff (44) reported that the New Jersey Committee offered a formula for zinc oxide containing 20 parts of zinc oxide with 7½ parts of paraffin and 72½ parts of white petrolatum. Lee (45) presented four formulae for zinc oxide ointment using castor oil as the levigating liquid and a combination of Purdue base. The formula which was suggested as best of the four contained no castor oil but liquid petrolatum. The formula suggested as the best is as follows:

Zinc oxide	20
Liq. petrolatum	5
Anhydrous lanolin	5
White beeswax	5
White petrolatum	65

This preparation was a smooth white ointment which could be applied to abrased surfaces without undue discomfort.

The next mention of the ointment was a report on the British Pharmacopoeia (1932) ointments in which a formula was presented calling for:

Zinc oxide finely sifted	150
Simple ointment	850

The simple ointment formula called for wool fat 50, hard paraffin 100 and white or yellow petrolatum. The continued problem of a formula was still one to be decided by the Committee and a new formula was submitted in October of 1932 (46) containing 12 gms. of castor oil as the levigating agent and cutting the Purdue base to 3.4 gm. of each of the anhydrous lanolin and white beeswax with the white petrolatum cut to 61.2 gms. Bibbins (47), after the Toronto meeting, writes that "I have set up some experiments in equipment design to determine the rate of oxidation in ointment bases, and I find that ointment of zinc oxide made with castor oil does oxidize very rapidly and the castor oil becomes rancid. I feel that the addition of a vegetable oil of this type to unguentum zinc oxide would be a mistake because the product would not hold up under long aging." He then recommends a new formula as follows:

Zinc oxide	20
White wax	2
White petrolatum	78

Seltzer (48) writing in the Sub Committee 13 bulletins stated: "The formula for zinc oxide ointment was accepted, but some objection was made to the presence of castor oil. The original formula submitted by Professor Lee included glycerin, which, on account of its viscosity, was efficient as a levigating agent for zinc oxide. Your chairman consulted several dermatologists and received the opinion that this ingredient would be objectionable in some cases in which this ointment was indicated. . . . . A mixture of anhydrous lanolin and 16.6 gm. of heavy liquid petrolatum produced a liquid of the necessary viscosity to levigate the zinc oxide and serves equally well as compared with either glycerin or castor oil." He then recommends a formula:

Zinc oxide	20
Anhydrous wool fat	3.4
White wax	4
Heavy Liq. Petrolatum	16.4
White petrolatum	56.2

This formula was again given consideration and after considerable committee work the following formula was finally adopted (49) for USP XI.

Zinc oxide	20
Liquid petrolatum	10
Anhydrous lanolin	5
White petrolatum	60

In 1940 (50) three formulae were again submitted to the U.S.P. Revision Committee, the USP XI official formula with two modifications in base only, namely, wool fat 5 with 65 gms. of simple ointment and the second using wool fat 5 and a simple ointment base made by substituting yellow wax for white wax in the formula.

The Chesebrough Manufacturing Company now submits another formula on this controversial product (51) which contained the following:

Zinc oxide in very fine pwd.	20%
Wool fat	5%
White wax	5%
Benzoinated white petrolatum	70%

The benzoinated petrolatum was made by adding 10 gm. of Sumatra benzoin in powdered condition to 1000 gms. of white petrolatum and macerating the benzoin in a bag in the petrolatum kept at about 49°C. for 24 hours. The question of benzoinated white petrolatum was finally voted down and the USP XII formula was finally adopted in which the liquid petrolatum was deleted and wool fat was set at 7 parts with the white ointment increased to 73%.

Lee (52) recommended to "Increase the wool fat to 10 gms. and reduce the white ointment to 70 gm. This change makes the levigation of the zinc oxide much easier and a better product results. Note: Glycerin is the ideal levigating agent for zinc oxide and should be acceptable in any case." The formula was finally approved as a continuation of USP XII in USP XIII.

During the interim between USP XIII and USP XIV, there were several cases of dermatitis reported due in part to the presence of wool fat in the formula, and this again led to a change in the formula in which the wool fat was deleted and replaced with liquid petrolatum. The formula now called for zinc oxide 20, liquid petrolatum 15 and white ointment 65. This formula has now survived the last three compendiums and it may be that a formula has finally been obtained which will be a solution to this most perplexing problem of a product which has had a long and continued use.

The formula in use in our laboratory at Purdue is the one recommended earlier in which glycerin is used as a levigating agent in place of liquid petrolatum. We have found and have recommended many times the use of glycerin because of its adhesive properties and because it produces an excellent and workable paste of zinc oxide.

This report has been made in an effort to give a comprehensive review of this preparation which has survived the inroads of modern medication. It has also shown the many possible approaches to a good preparation for the skin in its use in dermatological medicine. It may also show an added approach to the use as a foundation cream in cosmetics.

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Chemistry and Uses of IODOPHORS

BY J. J. CONNOR

Chilean Iodine Educational Bureau, Inc.
New York City

THE ELEMENT IODINE and numerous applications of it have been known to chemists for almost a century and a half. Perhaps it is fitting that during the sesquicentennial (1961) of the discovery of iodine that the subject chosen for discussion is one of the modern novel chemical adaptations of this element.

The solubilization of iodine in common aqueous and organic systems has been discussed in many publications (1, 2, 3, 4). It is not intended to review the literature cited, but to list some of these publications so that one might have a better appreciation of the novelty and versatility of the iodophor systems.

It might also be pointed out at this time that the germ*icidal* capacity of iodine for a wide range of microorganisms has been adequately covered in the literature (5).

As defined, "an iodophor is a mixture of iodine and a carrier in which the carrier is a compound that greatly increases the solubility of and tends to stabilize iodine in aqueous systems to reactants other than microorganisms" (6). This combination results in products with:

1. A very low iodine vapor pressure.
2. Reduction in rate of chemical reaction of iodine.
3. Changes in characteristic iodine-surface interactions.
4. Reduction in eye and skin irritation.
5. Increased stability in greatly diluted aqueous solutions.
6. Elimination of permanent staining.
7. Reduction in odor.
8. Exceptional safety in connection with oral toxicity.

The carriers in the iodophor systems may include in their chemical constitution, anionic, cationic or polymeric type material as well as nonionic surfactants. At present, most attention has been focused on the nonionics and the water soluble polymeric polyvinylpyrrolidone types of carriers.

Nonionic iodophors

The condensation of ethylene oxide with hydrophobic compounds containing active hydrogen offers many possibilities for compounding. Examples of these hydrophobes as general classes include polyglycols, alcohols, phenols, thiols, primary and secondary amines, carboxylic and sulfonic acids and their amides.

The actual number of compounds included in the above general categories of hydrophobes is extremely large. Variation in mole ratio or moles of ethylene oxide per mole of hydrophobic compound adds further to the number of combinations that would be possible for variations in water solubility, detergency, foaming, and other physical and chemical properties.

Condensates of ethylene oxide with polyoxypropylene glycols are being used widely as carriers of iodine. Incremental changes in molecular weight as well as hydrophobic-hydrophilic ratio make it possible to observe uniform changes in physical properties of the carrier. Iodophors have been prepared which provide titrable and germicidally effective iodine up to approximately 28% by weight of the complex (7). The general formula of this type carrier is represented by the following:

$$HO(C_2H_4O)_x\,(C_3H_6O)_y\,(C_2H_4O)_{x'}-H$$

where $_y$ equals at least 15 and $(C_2H_4O)_{x+x'}$ is equal to a minimum of 20% and a maximum of 90% of the total weight of the carrier.

In order to facilitate the solubilization of iodine in the above type of carrier and to protect the composition from loss of iodine by alkali that might be present, the iodine-carrier mixture is agitated within the temperature range of 45° to 75°C. in the presence of an acid that is inert to iodine (7). The acid used should preferably be between 2 to 3% by weight of the mixture. The possibility of cloudy solutions resulting from the addition of other ingredients, certain conditions of temperature, or concentration on dilution may be greatly diminished by the incorporation of a definite ratio of nonyl-phenol ethylene oxide to the polyethoxy polypropoxy ethanol-iodine complex. If very dilute aqueous solutions are to be marketed, a diluent inert to the complex, such as isopropanol may be added to insure easy and rapid dilution (7).

Another series of iodophors has been prepared (8, 9, 10) by dissolving iodine in surface active agents of the general formula:

$$R-(CHR'\text{-}CHR'\text{-}O)_n-H$$

where R represents the residue of an organic compound containing active hydrogen, R′ equals hydrogen or lower alkyl and $_n$ is an integer from 3 to 100 or

higher, but preferably from 6 to 50. From the above general formula, one can envision the number of constituents that might be included as the hydrophobic organic residue. The most popular iodophor of this class to date appears to be the nonylphenoxy polyoxyethylene ethanol-iodine complex.

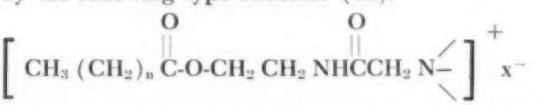
The ability of the nonionic surfactants to render iodine soluble in aqueous solution has been hypothesized to be due to the dissolution of the iodine in the micelles of the nonionic (6, 11). Not all of the iodine solubilized in nonionic surfactants is available as free titrable iodine. While most of the iodine can be calculated as free iodine, a portion is bound to the surfactant (11, 12) and the remainder of the detectable iodine is apparently associated with available hydrogen ion.

From past work (6, 12) it has been indicated that the iodine-nonionic surfactant system exhibits a point of stable equilibrium in connection with the hydrogen iodide concentration. Reducing the hydrogen iodide concentration by raising the pH, or adding other constituents, leads to the formation of more hydrogen iodide to reestablish this equilibrium. The result is a proportionate reduction in available (free) iodine. This effect has been demonstrated (6).

Since molecular iodine exerts the widest range of germicidal capacity of differing iodine species, it is logical to assume that an iodophor should be compounded to favor the formation of the greatest amount of free iodine (13, 14). In order to insure this condition, a sufficiently acid environment should be maintained. While many acids are compatible with iodophors, one of the most frequently used acid buffers has been phosphoric acid.

Cationic iodophors

Preparations containing iodine in conjunction with quaternary ammonium compounds are being utilized. Among these nitrogen compounds capable of carrying up to 25% by weight of iodine are those represented by the following type structure (15).



The valence bonds of the terminal nitrogen indicated above can be satisfied by formation of a heterocyclic ring possessing nitrogen, such as derivatives of picoline, pyrrolidine, quinoline and pyridine. The acid radical may be varied as indicated by the symbol $_n$, where $_n$ is a number from 4 to 20 inclusive. The preferred anion $_x$ is a halogen.

While water is the normal solvent for the above system, compatible water soluble organic solvents may be admixed. It is important that the pH of the composition preferably be kept below 7 by the addition of suitable buffering agents.

Other quaternary ammonium compounds capable of complexing iodine include those (16) with substituents specifically designated as R_1, R_2, R_3, R_4, where at least one of the substituents R_1 and R_3 is a fatty alkyl group of from C_{12} to C_{18}; at least one of the substituents R_2 and R_3 is an oxyethylene radical providing a total of from 2 to 200 oxyethylene units and where R_4 also consists of restricted constituents. R_3 when not covered by the previous explanation may be a specific lower alkyl, phenyl or benzyl radical. A salt forming anion fulfills the valence requirements.

Polyvinylpyrrolidone is perhaps one of the most widely used carriers of iodine. This combination, known as PVP-iodine, may be prepared by mixing at specified temperature varying concentrations of powdered polymers of 1-vinyl-2-pyrrolidone having moisture contents of from 4 to 15% (17). The resulting compositions dissolved in water give stable aqueous solutions of PVP-iodine.

Part of the iodine added to PVP is reduced to iodide ion, a small percentage becomes organically bound and the remaining iodine can be titrated as available iodine. It has been postulated that the PVP molecules form a helix, with the iodine atoms contained within the helix (18).

Iodine has been dissolved in other water soluble polymers (19, 20, 21). Perhaps the most interesting of these are the cellulosic derivatives, methyl and carboxy methyl cellulose.

Uses of iodophors

Iodophor detergent-sanitizers are widely used because of their surfactant properties coupled with the bactericidal values of iodine, such as:

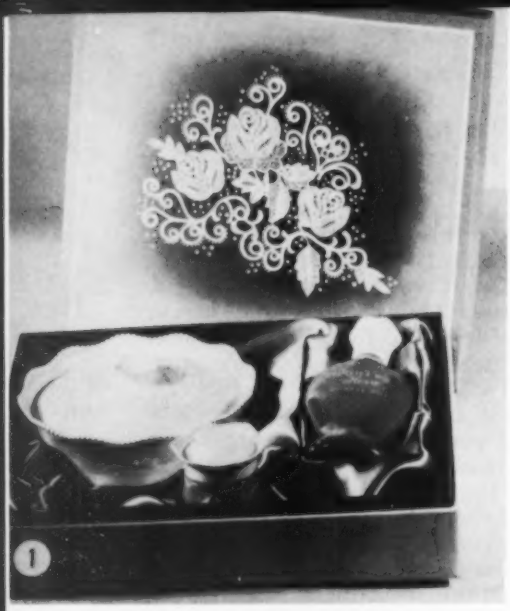
1. Virtual contact kill and non-specificity of this action on pathogenic organisms.
2. Efficiency at low temperatures.
3. Activity in both hard and soft water.
4. Germicidal effectiveness at low concentrations.
5. The "built in" color indicator showing germicidal capacity of the liquid iodophors.

Examples of some of the general areas where surfactant iodophors have been used are hospitals, schools, food and beverage processing plants, homes, bars, kennels, poultry processing plants, dairies and restaurants.

The synergistic germicidal effects exerted by the combination of iodine with surface active carriers and the excellent reports (6, 11, 14, 22) on the lack of eye and skin irritation help to enhance the consideration of iodophors for topical use (22, 23). Sample formulations for topical application including germicidal soap, dry powder, dentifrice and mouth wash have been reported. Ingredients such as urea, ureanitrate, sodium lauryl sulfate, carbowax-6000, soap stock, flowers of sulfur, sugar, saccharine, tartaric acid, talc, glycerine, menthole, anethole and others have been included in formulations (7, 24, 25, 26). A recent addition to the hospital market has been a liquid detergent-germicide for surgical use containing nonylphenoxypoly (oxyethylene) ethanol-iodine complex, triethanolamine dodecyl benzene sulfonate and essential oils.

Cationic iodophors have been formulated (27) for use as surgical scrubs. Evaluation of this type of product with other leading scrubs have shown the cationic iodophor to be an excellent skin degerming agent (27, 28). Other iodine-quaternary ammonium complexes have been suggested for the treatment of fabric and paper which may subsequently be used for sterilizing and disinfecting purposes. Because of the substantivity of cationic iodophors, they have been

(*Continued on page 58*)



AWARD WINNERS SHOW
the trend in packaging

BY WALTER FRANKS

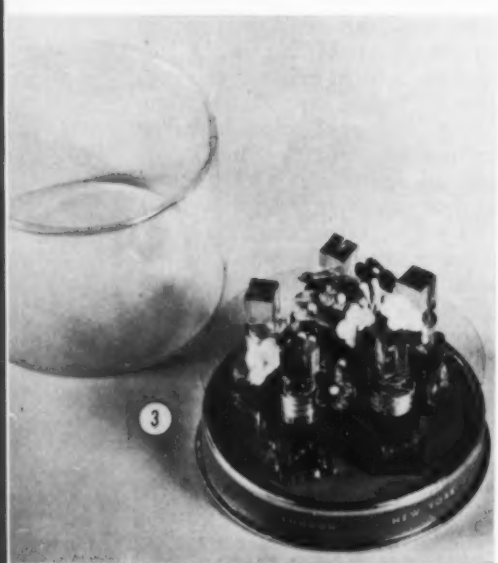
1. Romantic Mood Avon Box. **First award in rectangular cosmetic boxes.** Designed by Max Rogers and made by Walter J. Jamieson Corp., Rochester, N. Y. The set-up box has a convenient form to package three plastic cosmetic containers in blue and white. Lid is soft blue decorated with embossed lace fitting snugly on white shoulder style base. Interior platform, covered with blue satin, permits proper positioning of the cosmetics.

2. Dunhill Tailors Pinstripe Cologne Box. **First award in round cosmetic boxes—excellence award in best surface design.** Designed by Jay Doblin and made by F. N. Burt Co., Inc., Buffalo, N. Y. Restraint and sophistication in the bottle's design are duplicated in the set-up box. The exterior of the tall round box resembles a grey pinstripe cloth, trimmed at top and bottom in black and gold. Product identification is on base and cover top.

THE COSMETIC CHEMIST today is increasingly involved with factors outside his laboratory. One of these is packaging. Contrasted with the cosmetic chemist of some 50 years ago, his is a delicate, key role in a many-faceted operation which comprises a major investment today. Also the current cosmetic chemist is usually involved in a major merchandising change.

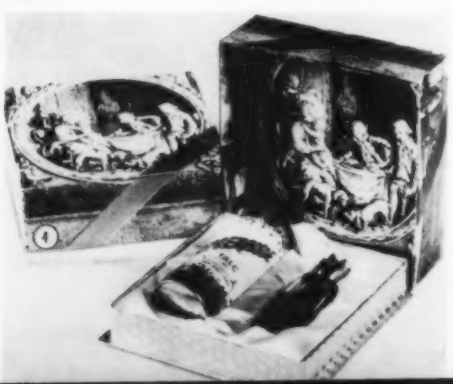
A case in point is the simple packaging of yesteryear currently on display in the new headquarters of Avon Products, Morton Grove, Ill. The cosmetic chemist comparing this line with the many times multiplied offering of packages today must muse on the comparatively simple life his brethren had in that era.

Deodorants today, for example, are just not a cream in a screw-capped opal jar. Deodorants have exploded into liquids, into aerosols, into solid sticks, into pads, into swivel-type dispensers, into roll-ons, and shortly even other dispen-



3. Miniature Perfumes Box. **Excellence award in transparent boxes.** Elizabeth Arden Sales Corp. Made by F. N. Burt Co., Buffalo, N. Y. Five tiny bottles are raised to the top of the lavender colored platform for maximum visibility, and topped with a colorful bouquet of flowers. Base is well constructed and trimmed in gold, around which are identification features. Acetate lid fits snugly over the base; gives good display of contents. A protection disk of acetate fits over bottles and holds them in place.

4. **Excellence award in rectangular cosmetics boxes.** Designed by Eric DeKolb for Coty, Inc., and made by Samuel Barnett Co., Philadelphia. Good use of classical and antique paintings for cover design. Painting is repeated on the hinged-lid's interior. Coty name is gold embossed on green satin ribbon. Base of box holds attractive green bottle of toilet water and green and white box of talcum. Simple design is elegant and attractive. Has identification, convenience and re-usability qualities.



5. D'Orsay Intoxication box. **Excellence award in rectangular cosmetic boxes.** Produced by Wallace Paper Box Corp., Maspeth, N. Y. Package gives the toilet water and dusting powder full display in upright position.

sing techniques, now being tested, will appear.

Each new dispensing technique requires careful functional—constructional—graphic design to complement best the method; to call consumers' attention quickly that "here is a new (and better) package for Milday"; and to impress the consumer with its quality; with its prestige factor; with its economy of use and ease of application.

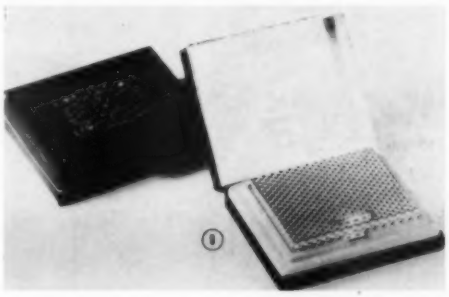
In forthcoming issues let's look at future trends. Have you any item or any field you'd like discussed? We welcome your suggestions.

Now, let's look at a quick compilation of set-up box excellence in the cosmetic field, as adjudged by the National Paper Box Manufacturers' Association in its annual competition.

Femininity is the thread running through the majority of the entries . . . femininity clued to today's fashion trends, even to the adaption of old and excellent and tried family identifications.

6. Mary Chess Cologne Box. **Excellence award in rectangular cosmetic boxes.** Produced by The Chaspec Mfg. Co., Greenwich, Conn. for Mary Chess, Inc. Box has loose draped satin inner covers with red velvet platform to hold 15-oz. Italian glass bottle. Embossed gold foil wrap on box, removable platform for re-use value, and metal spring hinges are features. Mary Chess is in gold letters on satin-finish lid interior.

8. Prince Matchabelli box. **Excellence award in round and oval cosmetic boxes.** Designed by Rudolph Urias and produced by Karl Voss Corp.,Hoboken, N. J. White satin covered oval box is trimmed in gold and has red velvet ribbon across lid with the crown of Matchabelli. Base's platform is covered with white satin, in which rests three bottles of Matchabelli perfumes.



9. Love-Pat compact box. **Excellence award in superiority of construction boxes.** Produced for Revlon, Inc. by F. N. Burt Co., Inc., Buffalo, N. Y. Fine gold leaf stamping and embossing is elegant against dark matt finish background. This is accented with gold edge at cover bottom. Drawn acetate trays can be alternated in box to hold four different size compacts. Eye appeal and a touch of the classic.

10. Soap and Toiletries box. **Excellence award in soap boxes.** Designed by Pamela Adams for Stanley Home Products, Inc., and produced by Wallace Paper Box Corp., Maspeth, New York. Catches the attention of the small fry. Sturdy box in white and pink and gold decorations, has a sleeve cover, and cut-out window to see the Kitty soap. Removable platforms gives box re-use value for childs' jewelry or trinkets. Holds four bars of soap and two bottles of toiletries.

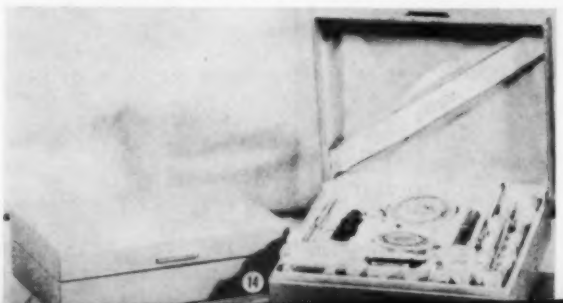
7. Incanto perfume purse dispenser box. **Excellence award in rectangular cosmetic box.** Produced by The Manufacturers Box Co., Inc., Bridgeport, Conn. for Chese-brough-Pond's, Inc. Previously an individual unit from counter display, box proved successful in upgrading the product by using a very fine and well-designed outer container. Old World Roman etching covers the box, connotating quality and prestige of product.

11. Beauty dividend box. **Excellence award in transparent boxes.** Designed by Charles F. Brooks for Frances Denney and produced by Samuel Barnett Co., Philadelphia. A new idea in piggy-back arrangement for two jars of cream. Base of box and interior of lid have a styrofoam cushion pad to protect contents. Lid and base are covered with foil paper. Upper jar fits snugly into die-cut hole in lid's platform. Protective gold disk separates the two jars. Heavy duty acetate makes up the side walls. A vinyl expandable ribbon keeps package closed.

12. Men's lotions box. **Excellence award in best display boxes.** Designed by Oliver Flower for Max Factor and produced by Specialty Paper Box Co., Los Angeles, Calif. Display of 3 shaving needs is masculine in overall appearance. Box is wrapped with a deep red paper with black lines spaced at ½" intervals. Company name and symbol are on the lid. Product identification is on one end of lid for retail shelf convenience. Base matches lid and has silver covered partition to house three items. A good color scheme enhanced by silver color of center item and white printing on glass bottles.

13. Lipstick counter display box. **Excellence award for best display box.** Produced for Northam Warren-Peggy Sage by Wallace Paper Box Corp., Maspeth, N. Y. Excellently engineered to show two dozen lipsticks in tiers rather than flat. Conserves counter space. Product becomes the dominant element of the self-service display. Lipsticks are held firmly upright in die-cut slanted platform, underpinned by paperboard steps. Base is wrapped in gold foil printed in white. White display card is printed in gold, red and black. Lipstick colors are named on slanted platforms, plastic lip samples show hues.

14. Treasure chest cosmetics box. **Excellence award in superiority of construction.** Produced for Max Factor & Co. by The Chaspec Mfg. Co., Greenwich Conn. Complete line of new cosmetics is housed in a handsome treasure chest. Re-usable box has loose-draped satin platform and inner cover with metal spring hinges. Good background for the product, some of which are also blue. Box exterior is of heavy simulated blue leather paper, without identification. Company name is on a white velvet card on the lid's interior and is removable.



News of the Societies

SCC, Los Angeles Chapter

At the recent meeting, Dr. E. J. Karolyi, Max Factor & Co., described his unique technique of detecting skin irritation at levels far below those which give positive patch tests.

"The method," he told a record crowd, "consists of examining microtome section of exposed skin under the microscope." Using guinea pigs he found that the ratio of fibroblasts to other cells increased as the dosage of irritating substance was raised.

In normal skin, the ratio is 1.20 : 2.30, and when the skin is exposed to 3% croton oil had a ratio of 5.69 : 6.34. Many of the substances which showed irritation by this method gave completely negative patch tests to humans.

The membership was especially appreciative of the many enlightening points Dr. Karolyi brought out, as well as his interesting slide demonstrations.

At the April meeting, Dr. Joseph B. Michaelson, director of Applied Biological Science Laboratory, discussed the problems encountered in present day toxicological evaluation of cosmetic and food products. He emphasized the importance of selecting the proper animals for the test, because of the wide variation in responses.

Dr. Mathew Bruner, dermatologist, is the scheduled speaker for the forthcoming meeting. Dr. Bruner, a graduate of University of Chicago and Rush Medical School, is currently associate professor at Northwestern University. From 1948-1960, he was consultant on dermatology for the Toni Company.

—by **E. A. Walker,** publicity chairman.

SCC, New England entertains the ladies

Members of the New England Chapter went all-out at their latest meeting to entertain the ladies. This, the second annual function of this type, drew over 75 members and guests. Favors, and corsages were provided for the distaff side. A large variety of door prizes were donated by various cosmetic industry firms. After-dinner entertainment included a popular comedian and dancing.

Entertainment committee members responsible for a successful evening include: Chairman James Dugan, Dodge & Olcott, Inc.; William Thalheimer, Atlas Powder Co.; and Richard P. Reavey, John H. Breck, Inc.

—by **R. P. Reavey,** publicity.

The American Society of Perfumers Inc.

New officers elected at the last meeting include: Bernard Polak, Polak's Frutal Works, chairman of the board of directors; Harry Cuttler of Revlon is president; John Hancock, Warner Hudnut, 1st vice president; Edward Shuster, International Flavor & Fragrance, 2nd vice president; Dorothy Douglass, Shulton, Inc., secretary; and Edwin D. Morgan, Jr., Lever Brothers, treasurer.

New directors include: August Schwindeman, Dodge & Olcott; Dr. Stephen Jellinek, Polak's Frutal Works; Miss Josephine Catapano, International Flavors & Fragrances; and Victor DiGiacomo, Givaudan-Delawanna.

Members of the Symposium Committee are: C. F. Wight, International Flavors & Fragrances; Jacques Masson, Flam-Hapt Laboratories; Dr. Paul Lauffer, Northern Warren; Alfred Moeller, Noville Essential Oils; and Dr. Stephen Jellinek, Polak's Frutal Works.

—by **E. D. Morgan,** publicity

At the mid-May meeting, the last until Fall, Program Director Ed Shuster arranged to show two films: **Parfumes de France** and **Challenge—Nature's Chemistry.** The first, on loan from the Ministry of External Commerce of France and the Association of French Perfumers, was a tour of the flower growing areas of France, through the various manufacturing processes in the manufacturing of essential oils, to the finished perfume.

The second film, produced by Firmenich & Co. honors Nobel-Faraday-American Chemical Society Award Winners in perfume and flavor chemistry. It shows the isolation, identification and synthetic reproduction of flower oil and flavor components using modern research methods and analytical tools.

—by **Dorothy A. Douglass,** Sec'y.

CISA to continue current service projects

The Cosmetic Industry Service Association, at a recent meeting, voted to continue the two major service projects which the group has been undertaking.

CISA will continue aid to The House of the Holy Comforter, a non-sectarian home for women in the Bronx, and a school in Kentucky, sponsored by Save the Children Federation.

To the latter not only has financial aid been given by the association, but also CISA sends Christmas gifts of practical toiletries, games, books, drawing and painting supplies, etc.

Two parties have been given for the Bronx project, the latter on St. Valentine's Day. In addition to appropriate gifts of fragrances for each of the women, refreshments and entertainment were provided by the members.

The group is expecting to expand its service and membership. Interested women in the cosmetics industry may contact CISA headquarters at 45 West 9th St., New York City 11.

—by **Jill Jessee**

Paris Group Hosts IFSCC

The Syndicat de la Parfumerie, Paris, was host to the Comite de Direction of the International Federation of Societies of Cosmetic Chemists, recently at the semi-annual meeting. Outcome of the meeting was a clarification of the Comite functions and a crystallization of the possibility for setting up international standards for materials and test methods.

Shown at the meeting are (left to right): G. Dony, Dr. R. H. Marriott, president; Dr. L. W. Masch, M. G. deNavarre, Dr. P. Velon, Dr. J. Artigas and L. Schmuck.

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Abstracts from the scientific section of the Toilet Goods Association May 11, 1961

Instrumental Evaluation Of Commercial Citronellols and Geraniols and Their Esters

James A. Rogers, Jr., Director and
Zoltan E. Toth, Research Chemist,
Instrumental Laboratories, Fritzsche Brothers, Inc.

Continuing the work on Citronella oil presented at a previous meeting, instrumental analysis has been used to evaluate citronellol, geraniol and some of their esters which have been derived from Citronella oil. Starting materials will be examined and the resulting products described in view of their production methods. The components present in the various materials have been separated by preparative gas chromatography and identified by infrared spectrophotometry.

The Use of Hairless Mice for Study of Cosmetics

F. Homburger, M.D.; A. Tregier, M.S.;
J. R. Baker, F.R.M.S.; C. M. Crooker, B.S

The majority of today's cosmetic preparations are fundamentally of the same type as the ones used thousands of years ago by the Egyptians. They are substances applied to the skin to cover its imperfections and make few claims of altering any of the skin's characteristics except temporarily to improve its external appearance.

This conservatism in cosmetology is not due to a lack of desire of the industry to develop cosmetics with true rejuvenating effects, but rather is caused by lack of experimental basic biologic tools for the discovery of safe cosmetic ingredients. These ingredients should have the ability to correct some of the known aging changes of skin such as dehydration, reduction in lipid content and changes of connective and elastic tissue which are today mostly considered as irreversible.

Such studies in humans are difficult, costly and limited by many factors which, in animals, would not have to be considered. The use of experimental animals for cosmetic studies has been limited to rabbits and guinea pigs. The skin of these species is considered closely resembling human skin, but there are many uncontrolled factors in these animals (such as their mixed genetic background)which make it difficult to obtain uniform results. Furthermore, rabbits and guinea pigs, as well as ordinary laboratory mice, require shaving to study naked skin. This introduces another variable.

The *hairless mouse,* on the contrary, presents a skin surface devoid of hair once it has shed its first and only fur which grows soon after birth and is lost at about 4 weeks of life. This mouse has a strictly controlled and known heredity, the result of many generations of inbreeding, and for a few months of its life its skin is not much different (except for absence of hair) from that of a normal mouse. While its microscopic appearance differs from that of human skin, it contains all of the elements of the human skin and with aging these undergo the same degenerative changes as are occurring in human skin.

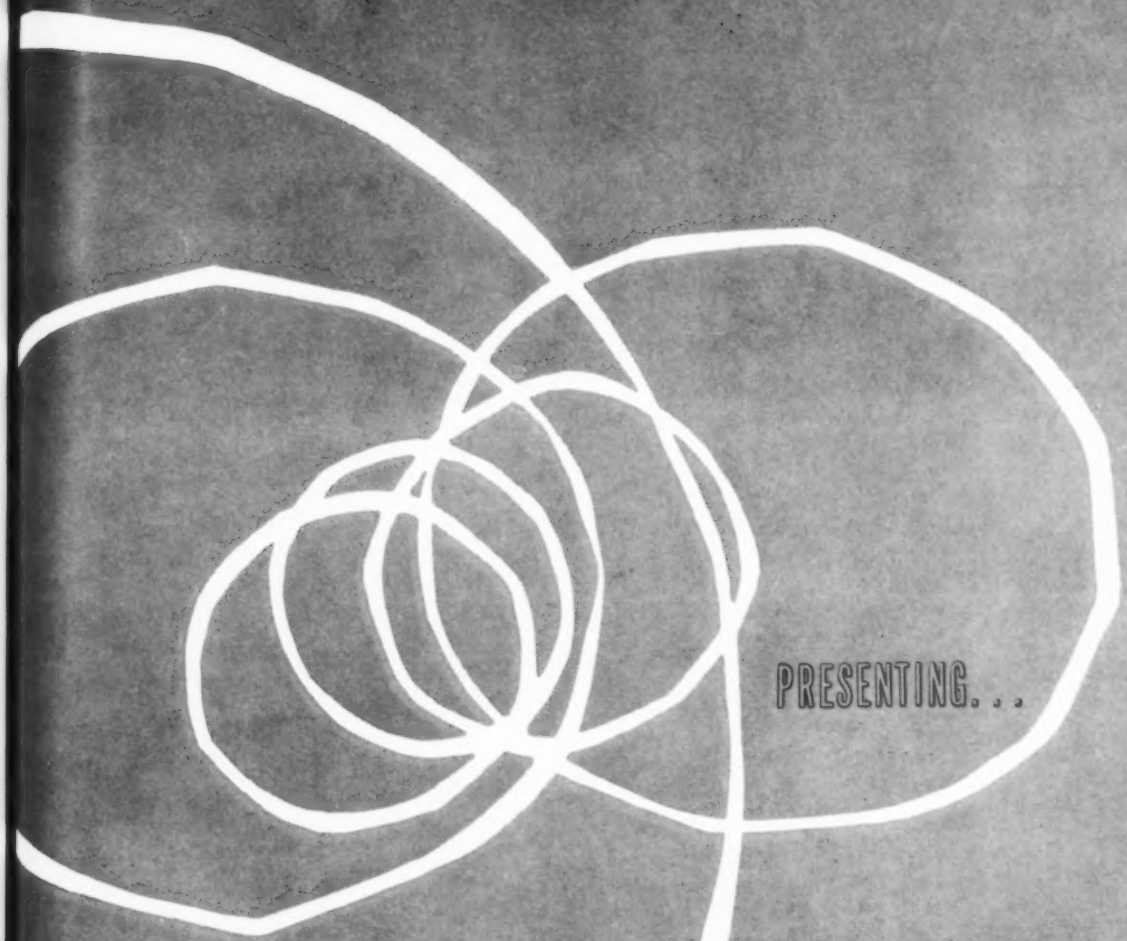
The experiments to be reported in this paper give evidence to the effect that: the skin of hairless mice responds to the application of estrogenic and other steroid substances much as has been claimed for human skin; that this type of change can be differentiated from the surface effect of bland cream bases; and that with sufficiently high dosages of hormones applied to skin their effects on the sex organs of the mice can be demonstrated in the same experiments designed to study the local response of skin.

There is, therefore, available now a biologic testing tool which permits the screening of biologically active compounds. It detects those compounds which may beneficially affect the various elements of skin without undesirable effects on internal organs. This method if properly used and cautiously interpreted, can revolutionize the field of cosmetology.

The Correlation Between Animal Tests and Human Tests in Assessing Product Mildness

J. D. Justice, J. J. Travers, L. J. Vinson
Research and Development Division
Lever Brothers Company

Four testing procedures, two with human skin and



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two with animal skin, were studied as means of assessing relative mildness in paired comparisons of soap and detergent products. An arm immersion test and an overnight patch test were employed using human subjects. Swiss albino mice were used in a repeat animal patch test.

Histopathological examination of skin sections was the basis of determining the effect of the test products on the animal skin. In the other animal studies, rats and rabbits were treated with the products and the rates of water transmission through the excised skins used as criteria of product mildness.

In only two of twenty-eight paired product comparisons was there an indication that the order of mildness was different in two tests, and in neither case was the difference significant.

Thus the correlation was generally quite good, and these animal screening tests can serve as useful guides in developing products intended for human use.

The Ionones and Methyl Ionones; a Structure Study via Nuclear Magnetic Resonance

Ernest T. Theimer, Ph.D.
Seymour Lemberg, Ph.D.
Research Laboratories of
International Flavors & Fragrances, Inc.

A qualitative discussion of the fundamental concepts of nuclear magnetic resonance is presented. The application of this powerful analytical tool to a comprehensive study of closely related compounds, the ionones and methyl ionones, demonstrates its uniqueness in structure elucidation.

An unknown component which has long been observed (via vapor-phase chromatography) in commercial methyl ionone has been isolated and its structure assigned by the combined techniques of vapor-phase chromatography, infrared, mass spectrometry and proton magnetic resonance.

In Vitro Studies on Water Diffusion and Uptake of Human Skin

Peter Flesch, M.D., Ph. D.
Dept. of Dermatology, University of Pennsylvania

There is a great need for test methods to evaluate the effects of topical preparations on human skin. "Moisturizing" of the skin surface is a frequent aim of cosmetic preparations, yet there are no simple *in vitro* methods available to measure this effect.

The purpose of the present work was to develop such tests. Water holding of the skin surface is determined by two factors: 1. the outward diffusion of water through the skin; 2. the penetration of water or water vapor into the horny layer. These two factors were tested individually.

For testing water diffusion, the evaporaton of water through a vessel, covered with human or animal skin, was measured by daily weighings of the vessel. Water absorption was determined by exposing pulverized or intact human horny layers to varying atmospheric humidities. Both of these test methods were applied to glycerine.

It was found that glycerine decreased the diffusion of water through excised human or animal skin. This action was believed to be due to occlusion of the skin surface. When mixed with horny layers, glycerine greatly enhanced their water uptake under the conditions of the experiment. The effect was one of potentiation, not of summation. It also occurred with water-extracted horny layers and was therefore independent of the natural hygroscopic components of the horny layer. It is probable that glycerine penetrates between the keratin fibers of the horny layer and facilitates the absorption of water.

The work calls attention to the role of the insoluble (keratinous) portion of the horny layer in the water-binding of the skin surface. Modification of this component may help in increasing the water-holding ability of the skin.

A Study of Aerosol Shaving Cream Using Statistical Experimental Design

Phyllis Carter and H. Mack Truax
Atlas Powder Company

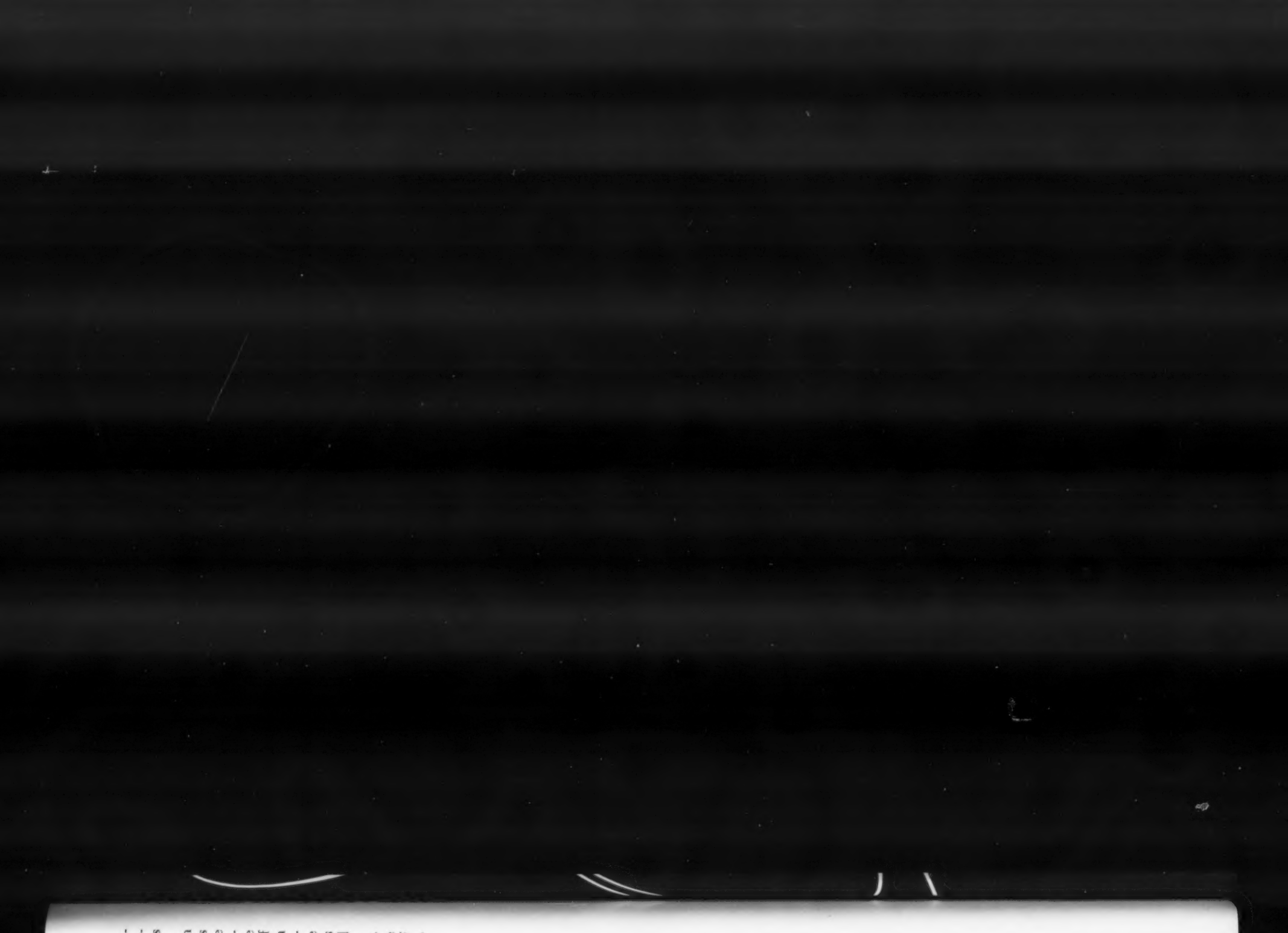
A study of recent literature and a survey of several manufacturers resulted in choosing seven variables which appeared to be important in formulating aerosol shaving creams. The effect of these variables on dispensation and foam properties was studied using statistical experimental design, permitting a maximum amount of screening information from a minimum number of runs.

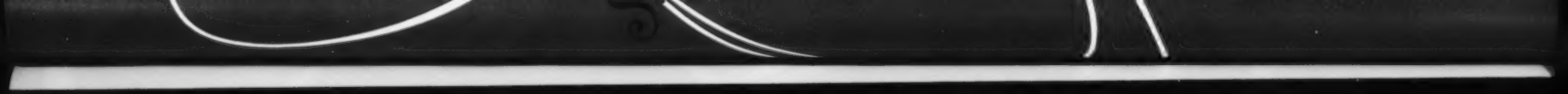
The Skin Respiration Factor: Evaluation of Various U.S.P. Ointments

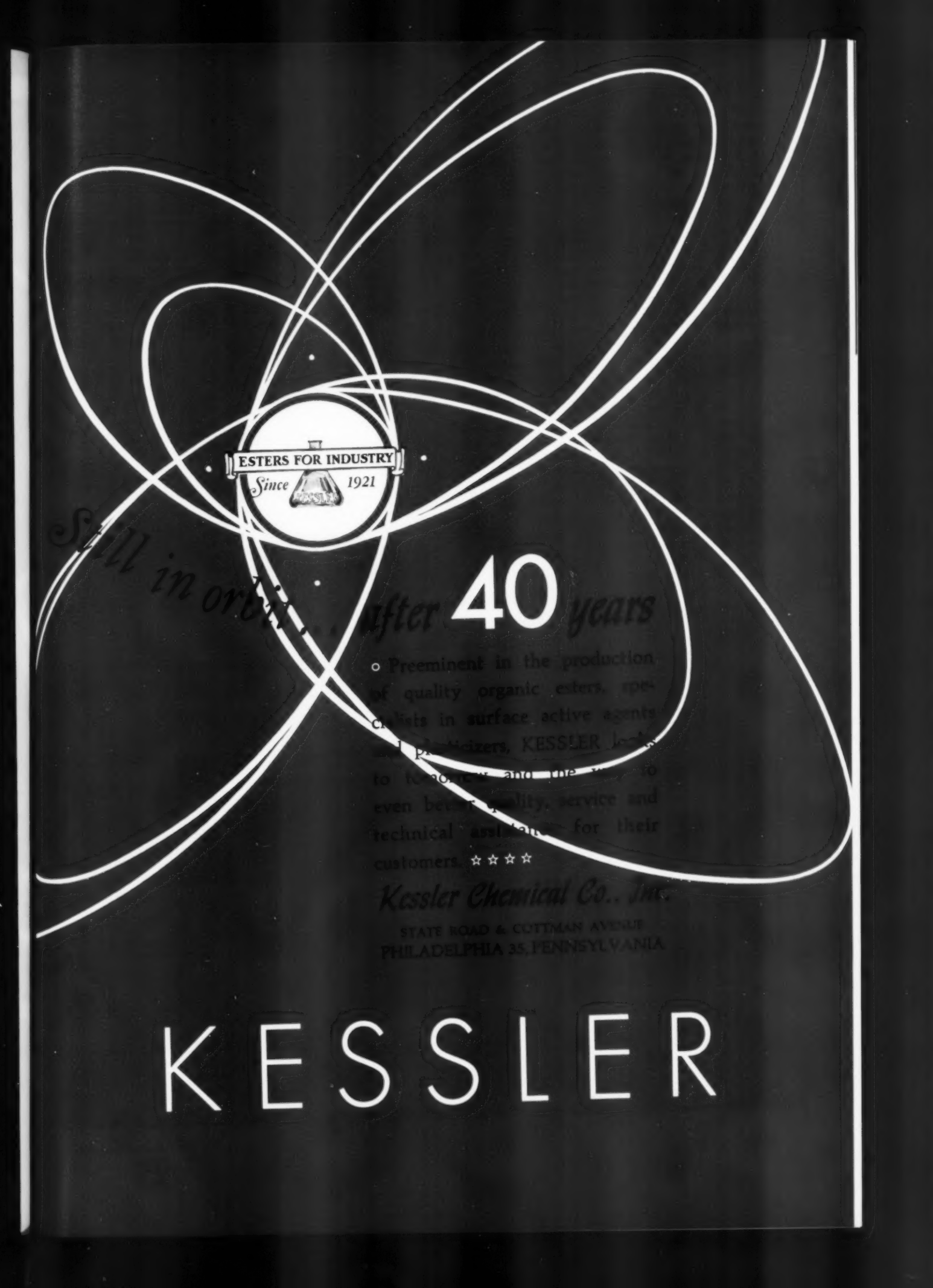
Henry Goldschmiedt, Ph.D., Institute of Applied Biology, Department of Cellular Physiology, and Irwin I. Lubowe, M.D.

A modified micro method using baby mouse tissue homogenate is described in the determination of skin tissue respiration. It was deemed advisable to evaluate various U.S.P. ointments as to their ability to depress or accelerate in the laboratory the skin respiration factor. Among the ointments included in the study were zinc, Vitamin A and D, boric acid, coal tar, yellow, white, polyethylene glycol, chrysarobin, ammoniated mercury, benzoic and salicylic acid, hydrophilic, rosewater, bacitracin, neomycin sulfate and zinc paste.

Very interesting results were obtained and will be described in the paper. As more knowledge and data accumulate, the skin respiration factor may become an important tool in the study of cosmetic and dermatological preparations, and the pathogenesis of cutaneous diseases.



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(Continued from page 45)

suggested as germicidal and fungicidal agents for application to animal and human hair (16).

The polyvinyl pyrrolidone-iodine complex may be employed for local skin application in ointment, cream, jelly, powder and solution (29). The above complex, referred to as PVP-iodine, has been shown to be useful in the treatment of many infections of the skin and mucosa (30, 31, 32, 33, 34). PVP-iodine has been used effectively as a shampoo in clinical tests on patients with seborrheic dermatitis of the scalp (35). A surgical scrub has recently been added to the growing number of products containing this material.

Many water-borne organisms are susceptible to very low concentrations of iodine (36). Investigations of the bactericidal and medicinal properties of iodine in connection with cosmetic application are needed. For instance, iodine as an active ingredient in formulations might provide the products with a built-in inhibitor of such organisms as *Pseudomonas aeruginosa, Serratia marcescens, Aerobacter aerogenes, B. anitratum*, and other organisms that could possibly degrade formulations or cause mold or slime formations (37, 38, 39). Because of the long history of the use of iodine tincture as a counter-irritant and the elimination of bacterial flora, formulation chemists might direct serious attention to new product development wherein these are warranted.

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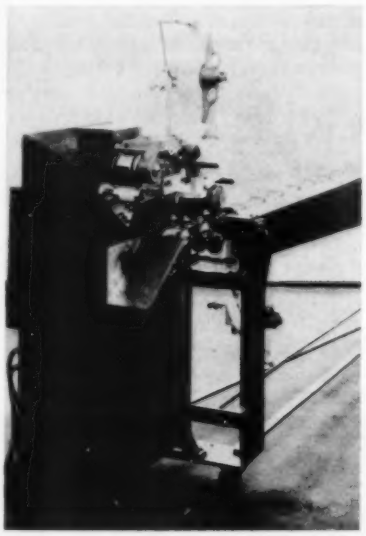
NEW PRODUCTS

Unit packages small, thin items

A machine has just been introduced that will wrap slender items, such as lipsticks.

It has a special assembly designed to eliminate the slot in the lower bed



through which thin products might fall. Available in either hand or automatically fed models, the machine will process 100 hermetically sealed packages per minute. **Wrap-Ade Machine Co., Inc. Dept. AP, 189 Sargeant Ave., Clifton, N. J.**

Single filer unscrambles and feeds fast

Unimatic Single Filer feeds glass and metal jars, bottles and containers onto a single file conveyor leading to a filling machine. Unit handles up to 600 containers per minute, gently and virtually eliminates breakage—even at high speed—the maker reports.

Machine uses a wire fesh infeed conveyor over which cases of empty containers are inverted. Belt moves containers into a four-laned oscillating head. This feeds a single file of units onto the outfeed conveyor. The machine may also be used to unscramble filled packages, feeding to a packing machine.

Various sizes of round containers can be handled. The discharge conveyor height is 37½", fitting standard container conveyor lines.

Climax Products Division, Lodge & Shipley Co., Dept. AP, 3055 Colerain Ave., Cincinnati 25.

Dries aerosol cans fast

Aerosol can drying machine, for removing water after cans have been passed through a water tank for leakage testing, operates on a continuous flow principle. After leaving water tank cans enter the machine over a 20" dia. turntable.

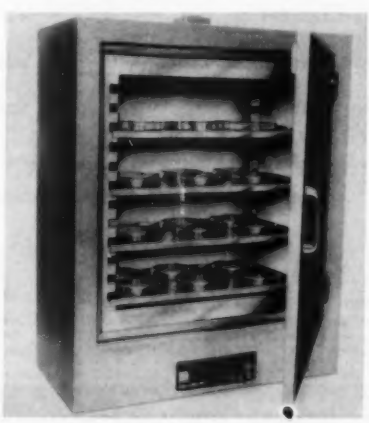
An endless chain picks them up and holds them in individual nests. They are turned upside down, excess water runs off, and the cans are dried by a positively directed air stream; then turned right side up. They move to a second 20" dia. turntable for valve and exterior drying.

Unit will dry up to 200 cans a minute and handles cans up to 3" dia. It is self-contained, having motor, stainless steel pan, blowing nozzle.

Automation Design & Machinery Co., Inc., Dept. AP, 1672 E. 233 St., New York City, 66.

Show incubator-embedding oven

Combination incubator and embedding oven replaces standard laboratory wall case. Called Wall-Cab, the unit is 12" deep and designed to conserve work space on the bench. It



hangs on the wall with mounting brackets, or can be located above the bench with four supporting rods.

Two units can be placed back-to-back on an island-type bench. Temperature range is from slightly above ambient to 60°C. Control tolerance is within ½° or better. Unit has a door-mounted dial thermometer. Enclosed radiant wall heating gives minimum of variation from the extreme corners of the chamber. Heater is accessible, and unit uses a blower, built-in air ducts.

Capacity is listed as 108 Petri dishes, single layer, or this can be increased by double stacking. Sliding, perforated, aluminum shelves are adjustable to accommodate test tube racks and large beakers.

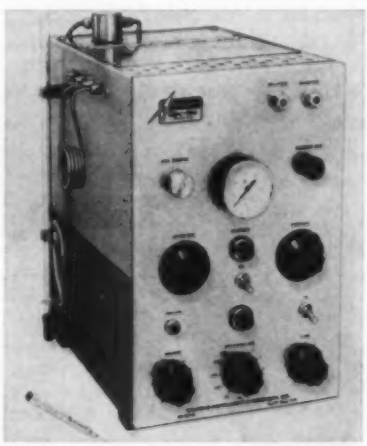
Unit is 24" wide x 30" high. Inside chamber is aluminum and outside cabinet is galvannealed steel.

Labline, Inc., Dept. AP, 3070 West Grand Ave., Chicago 22.

Ionization detector

Aerograph Hy-Fi (hydrogen flame ionization detector) has just been introduced. Unit is a high temperature programming Gas Chromatograph with the detector.

Unit is said to extend analytical possibilities into a whole new area



and is especially useful for the analysis of sex hormones, flavor extracts.

Unit requires 9½" x 11" bench space and uses either ⅛" or capillary columns. It has oven temperature variable to 400 C with fan for air circulation and rapid cooling, a stainless steel injector with adjustable temperature, panel controlled steam splitter, electrometer with coarse and fine zero control accurate attenuator, and ignitor button. Unit also uses stainless steel flame head with ignitor coil, air pump, air filter and a packed ⅛" stainless steel column.

Wilkins Instrument and Research Inc., Dept. AP, P. O. Box 313, Walnut Creek, Calif., Att'n: Dr. Keene P. Dimick.

Analyzer detects trace materials

Continuous chemical analysis with automatic blank or interference compensation is now possible with recently introduced instrument. Unit, called AutoAnalyzer, can detect trace materials down to parts per billion with an accuracy of 1%. Moreover, it is said, the unit provides dependable analysis with exact reproducibility.

All steps of a chemical analysis are automated and integrated into a continuous flow system. The instrument measures, mixes, purifies, processes, compares and records and runs 20, 40 or 60 complete tests without human supervision, the maker reports.

A differential colorimeter automatically cancels out high blanks or colored samples which interfere with an analytical reading. Two-position switch permits use of either a differential colorimeter or two separate colorimeters.

Silica, phosphates, iron, chloride, sugars, aluminum, sulphates, copper, etc. can be analyzed. Unit is self-cleaning and of modular design.

Technicon Controls, Inc., Dept. AP, Research Park, Chauncey, N. Y.

Purified hair colors just introduced

Line of highly purified oxidation colors for hair dyes has just bowed. Latest shades of red, gray, brown and black are available.

Known as Pyloxidyes, the colors are packed in one pound to 100 pound drums. Samples and descriptive literature are available on request.

Pylam Products Co., Inc., Dept. AP, 799 Greenwich St., New York City 14.

PERSONALITIES

Four new sales representatives have been named by John H. Breck, Inc. **Daniel J. McCarthy** has been assigned to the southwest, **Bernard A. Rivotto** will work in the north central states, **John N. Akers** has been assigned to the metropolitan Chicago area and **John R. Heffernan** will work in the southeastern section of the country.

John Kiehl will serve Colgate-Palmolive Company's Research and Development Department as consultant to the perfumery section. He had been Colgate's chief perfumer for more than ten years before he retired in1951.

The new eastern regional office of the Glass Container Division of Owens-Illinois will be staffed by **Kenneth O. Boyer,** administrative manager; **Joseph M. Mueller,** manager of service and transportation; and **Arthur L. Gehring,** manager of quality control, as announced by **Earle G. Ingels**, division vice president and eastern regional factories manager.

Ira Joss has joined Kolmar Laboratories, Inc., Milwaukee, Wisconsin, as part of their sales organization. Joss had been purchasing agent for Helena Rubinstein for the past five years.

June Adams, former vice president in charge of the women's division of Erwin Wasey-Ruthrauff & Ryan advertising agency, joins Helene Curtis Products Division as a product manager.

John L. Orphan, formerly west coast representative for R. D. Webb & Co., Linden, New Jersey, was named west coast manager at the recent annual sales meeting. **Thomas E. Butchko** was appointed assistant to the sales manager and it was announced that **Edwin G. Allison** had joined the firm as sales representative for New York City.

Magnus, Mabee & Reynard, Inc., New York City, recently announced the appointment of **Dominick E. Bellavigna** as director of production; **Donald L. Cumming** as director of technical correspondence; **Gosta Hedstrom** as director of analytical control and **Walter J. Senyszyn** as director of perfume research.

Two new members of the board of directors of Peerless Tube Company, Bloomfield, New Jersey, are **William G. Remington** and **Willard. W. Brown.** Remington is administrative assistant to the president of Peerless and Mr. Brown is vice president of Winslow, Cohu & Stetson, New York City.

Five new vice presidents at Owens-Illinois Glass Company, Toledo, Ohio are **Miles G. Beishline, Floyd M. Canter, Sid F. Davis, W. Boyd Owen,** and **Elliott R. Owens.**

Glyco Chemicals, Division of Chas. L. Huisking & Co., New York City, will be represented in the metropolitan New York area by **John P. Sheehy**. Sheehy will also cover New Jersey, Delaware, eastern Pennsylvania, Maryland and the District of Columbia.

John R. Charlton is now manager of commercial development for the Fine Chemicals Division of Shulton, Inc. Prior to joining Shulton, Charlton was general products manager of Canadian Curtiss-Wrigrt.

Murray Nadel, formerly general manager, is now vice president of Augusta Plastics, Inc. and Sapery Products, Inc., New York City.

The Toni Company's new sales promotion manager is **Leslie O'Rourke,** former Chicago district sales manager. O'Rourke joined Toni in 1952 as a sales representative.

International Flavors & Fragrances has announced the appointment of **Dr. Stanley K. Freeman** as a project leader on the company's research staff. He joins the company's Union Beach, New Jersey, research center.

Cyril S. Kimball will succeed **Dr. Foster D. Snell** as president of Foster D. Snell, Inc., New York City and Dr. Snell will continue as chairman of the board. Kimball has served the company as executive vice president since 1953 and before that held various positions including chief chemist, research director and vice president.

Actor H. Patton has just been named director of product development for Allied Chemical's General Chemical division. He has been manager of product development for 11 years, and previously was sales manager of General's Baker & Adamson line of laboratory reagents and fine chemicals. General Chemical is a producer of aerosol propellants, high purity laboratory and scientific chemicals.

Paul H. Lelong has joined the perfumery research and development staff of Colgate-Palmolive Company, and will have headquarters at the research laboatories, Jersey City, N. J. Previously he was a perfumer at Firmenich and Co. for seven years. He began his career in perfumery with Parfumerie D'Azy in Cuba. Later, he was associated with his father in forming the firm of E. Lelong, Essential Oils, in New York City. He became chief perfumer of Warner-Lambert Laboratories in 1948, and joined Firmenich five years later.

C. Pugh, B.Sc., F.R.I.C., has been appointed to the Board of County Laboratories Ltd., London, England, and is product research director.

Travelers

Antoine de Laire, head of Fabriques de Laire, Issy and Calais, France, recently spent a month in the States conferring with directors of De Laire, Inc., New York City, and with friends and other business associates.

Fernand Torino, chief perfumer of Companhia Brasileira Givaudan, Sao Paulo, Brazil, just completed a short visit with The Givaudan Corporation, New York City. His stateside stopover followed a tour of Givaudan facilities in France, Switzerland and England, part of the company's planned program of close coordination between the American, Brazilian and European laboratories of the firm.

Xavier Givaudan

Xavier Givaudan, son of Andre Givaudan, has returned to Europe following a six-months stay with the Givaudan firm in New York and with the organization's branch offices throughout the United States.

He will join the management of L. Givaudan & Cie., Paris, and also help direct the activities of the world-wide organization.

NEWS & EVENTS

Several Cosmetic firms market stock

The Stephan Co., producers of men's hair preparations, opened its stock for trading on the American Stock Exchange recently, and the Class A Stock of Helene Curtis Industries and of Max Factor & Co. are also new listings on the New York Stock Exchange.

According to Willard Gidwitz, president, Helene Curtis, earnings for the fiscal year ended Feb. 28 (not yet reported) would be approximately $1.60 a share on combined A and B stock, with sales increase of $54 million. The previous year, company reported $1.23 a share on $48 million sales.

P & G will build research center abroad

The Procter & Gamble Co., Cincinnati, plans to construct a research and technical services center in Brussels, Belgium. The first unit, on the 25-acre site, is expected to be completed during Summer of 1962. The Center will be operated as a new Belgian subsidiary.

Beach bag offered with cosmetics

The current issue of Mademoiselle carries a reader offer of a beach bag containing cosmetic samples from 10 cosmetic manufacturers. The manufacturers and products represented include: Bonne Bell Ten-O-Six Shampoo, Helene Curtis Creme Rinse, Dusharme Creme Hair Dressing, Lady Ellen Klippies, Yardley Vitavyn Cream, Yardley Fluid Film Foundation, Wild Violets lipstick by Michel, Sea and Ski tanning cream, Noxzema medicated Cover Girl pressed powder.

Owens-Illinois to construct in West

Owens-Illinois, Toledo, Ohio, is constructing a glass container plant near Tracy, Calif. The 305,000 sq. ft. facility is scheduled for completion in mid-February 1962, and will be the 19th one for the firm.

Rapid buys Cellu-Craft

Rapid-American Corp. has purchased Cellu-Craft Products Corp., New Hyde Park, N. Y., reputed to be the largest independent converter, designer and printer of flexible packaging materials.

Jefferson Chemical increases glycol production

Production of polypropylene glycols, coupling agents for cosmetic manufacture, has been increased by Jefferson Chemical Co., Inc. at facilities in Conroe, Texas. This unit is supplementing the production of the Austin, Texas plant.

Vending Symposium Scheduled for Fall

The first International Symposium of Automatic Merchandising will be held at McCormick Place, Chicago, Oct. 31 through Nov. 1.

The first day will consist of addresses, discussions and workshops, whereas the second day has been set aside for foreign delegates to tour typical vending and manufacturing installations.

Aerosol valve maker expands facilities

Newman-Green, Inc., Addison, Ill. aerosol valve producer has added a new molding and stamping plant adjacent to company's facilities. The new unit provides 20,000 sq. ft. space for warehousing and production, as well as for a quality control segment.

Salomon moves headquarters

L. A. Salomon & Bro., Inc., New York City direct importers of French Talc, is moving this month—after 81 years in same location—to 245 Fifth Avenue, New York 16.

D & O moves

Dodge & Olcott, Inc., has moved the Boston sales office to 600 Main St., Waltham 54, Mass.

Cosmetic emulsion seminars

Technologists of the cosmetic industry have the opportunity of attending a series of seminars on cosmetic emulsions, sponsored by Atlas Powder Co., Wilmington, Del.

Consisting of one-day meetings, subjects to be covered include: prospective Federal legislation, toxicological testing, practical emulsion formulation, and emulsion theory.

Attendance is limited to 12 so that each has maximum opportunity for

individual discussion with the speakers, and for participation in experimental emulsion demonstrations.

This Spring, six seminars are scheduled, two of which were held early in April. Other sessions may be scheduled for the Fall, T. P. Malinowski, Atlas marketing manager for the cosmetic industry reports.

Plans are presently being made to present practical formulation lectures by Atlas personnel at various cosmetic laboratories throughout the country where emulsification is of prime interest to large groups of laboratory personnel.

Nature of the first seminar was: a discussion by Dr. Joseph F. Treon, manager of the Biological Sciences Section, Atlas Research dept., on Toxicological Aspects of Cosmetic Formulation.

Speakers at the first meetings were: K. E. Mulford, assistant to the executive vice president of Atlas, and chairman of the Additives Committee, Synthetic Organic Chemicals Manufacturers' Association; and Chairman of the Food Additives Committee of Manufacturing Chemists Association. Mulford discussed *Federal Legislation and Its Relationship to Cosmetic Formulation.*

Toxicological Aspects of Cosmetic Formulation was discussed by Dr. Joseph F. Treon, manager of the Biological Sciences Section, of the firm's chemical research department. Application of *Emulsification Theories to Cosmetic Formulation* was discussed by Miss Phyllis J. Carter, Atlas development associate, and guest lecturer in 1960 at Columbia University College of Pharmacy on practical emulsion technology.

Theoretical Aspects of Emulsifications was discussed by Dr. Paul Becher. He is author of the American Chemical Society's monograph, "Emulsions Theory and Practice"; is in charge of the company's research in surface chemistry.

Attending the first seminars have been laboratory directors and scientists from the New Jersey and Chicago areas. They represented Alberto-Culver Co.; Carter Products, Inc.; American Cholesterol Products, Inc.; Bristol-Myers Co.; Colgate-Palmolive Co.; Helene Curtis Industries; A. B. Dick Co.; International Cosmetics; Johnson & Johnson; Kolmar Laboratories; Lever Brothers; The Mennen Co.; Joseph E. Seagram & Sons, Inc.; Shulton, Inc.; E. J. Squibb; Toni Co.; Warner-Lambert Research Institute; J. B. Williams, Inc.; and Yardley International Research.

OBITUARIES

Charles A. Senger, former vice-president and production manager of Albert Verley & Company, Linden, New Jersey. Senger served the Verley company for 38 years in all departments until his retirement last September. He was an active member of the Chicago Drug & Chemical Association and Chicago Perfumery, Soap and Extract Association.

Irving Colbert, 47, Director of the Products Application Laboratory of the Malmstrom Chemical Corp. Well known in the Cosmetic Industry, he was membership chairman of the N. Y. Chapter of Cosmetic Chemists for the past three years.

William H. Barlow newly-elected president of the American Society of Perfumers. Mr. Barlow retired two years ago from Orbis Products and was elected to the presidency of the Perfumers Society early in 1961. He was one of the founders of the Society in 1947.

Thomas C. Sheffield, vice president of Sheffield Tube Corporation. Sheffield was active in the California Cosmetic Club, and the Pharmaceutical Manufacturers Association.

ASTM Standards Supplements issued

The American Society for Testing Materials has issued various supplements to the ASTM Book of Standards (which is published triennially).

Aromatic hydrocarbons are included in supplement #8. The section includes 42 standards for pigments, drying oils, fatty acids, solvents, varnish and resins, paints, lacquers, industrial aromatic hydrocarbons, and latex paint.

Also of interest to the perfume industry is supplement #10, containing 334 pages, covering textiles, soap, water, atmospheric analysis and wax polishes.

Both supplements are in heavy paper covers and available from the Society, Dept. AP, 1916 Race St., Philadelphia 3, Pa., at $4.00 per supplement.

Dehydag transfers export business to Henkel

Henkel International GmbH, Dusseldorf, Germany, has taken over the export of the products of Dehydag Deutsche Hydrierwerke GmbH, Dusseldorf. All rights and obligations of Dehydag have been transferred to Henkel and business with the company is expected to continue in substantially the same manner.

New edition on leasing announced

A fourth edition of a study on equipment leasing has just been issued by the Foundation for Management Research. Entitled, "The Pros and Cons of Equipment Leasing for Smaller Manufacturers . . .", the revised manual advises executives on renewals, and options-to-buy at the end of the lease period.

Also latest Internal Revenue Service rulings with regard to write-offs of payments on leased equipment are included. The comparative costs of leasing, outright cash purchase, purchase by conditional sales contract, and through bank financing are shown in charts and tables. Advantages and disadvantages of leasing equipment are given.

Available from the Foundation, 121 West Adams St., Chicago 3.

Yardley sales winners off to London

Kenneth Crossman and William Reidemeister, winners of Yardley's annual sales contest, left recently to represent the American company at an international sales conference in London. Reidemeister and Crossman were second and third place winners of the 1960 contest. Charles R. Macauley, first place winner, received a cash award and the President's Trophy.

Ruger distributes for Belgian firm

Ruger Chemical Company, New York City, is distributing the perfumes and flavors of N. V. Sluys (Beochout, Belgium) as their exclusive agent in the United States.

Ruger is also a new small-quantity distributor for Kessler Chemical Company, Philadelphia, Pa.

Other firms for which Ruger distributes in small quantities include: Atlas Powder Company, the E. F. Drew Company, Parsons-Plymouth Company, Charles Pfizer Company and Sonneborn Chemical and Refining Company.

Laboratory expands services

The Jarrell-Ash Company has expanded its laboratory services to include the following fields: gas chromatography (organics and dissolved gases), x-ray diffraction, dissolved oxygen and fluorometry (traces of beryllium and uranium). Inquiries on problems and quotations for services should be directed to **Boyd M. Fagan, Laboratory Director, Jarrell-Ash Company,** Dept. AP, 26 Farwell Street, Newtonville 60, Massachusetts.

Hercules constructs new plant

Hydroxyethylcellulose will be produced at unit, currently under construction at Hopewell, Va., of Hercules Powder Co. of Wilmington, Del. It is expected to go on-stream in the first quarter of 1962, and will produce several million pounds of Natrosol annually.

Plastic Consultants, Inc. represents Clemens Chemical

Plastic Consultants, Inc., Wantagh, New York, has been named exclusive U.S. representatives for the Clemens Chemical Co., Brampton, Ontario, Canada. George Meyers, PCI president, is consulting with manufacturers concerning Clemens line of natural pearl essence on a no-fee basis.

New beauty editor on "Ingenue"

A full-time beauty editor, Mallen DeSantis, has been appointed by *Ingenue* magazine for teen-age girls. Mrs. DeSantis will handle activities of the projected *Ingenue* Beauty Lab and public speaking engagements pertaining to the teen-age beauty together with all areas of teen-age beauty for the magazine.

Steiger to represent Holmspray

T. J. Holmes Co., Inc., manufacturers of "Holmspray" atomizers, has announced the addition of Mickie Steiger Associates, Chicago, Illinois to their list of representatives.

Mr. Steiger traveled the mid-west in a supervisory position for Max Factor and Company for 13 years.

TRADE LITERATURE

Jar mills and jars

• 1961 line of eight jar mill styles for batch production processing, pilot plant production and analytical and experimental testing are shown in 16-page catalog #83. By Abbe Engineering Co., Dept. AP, 420 Lexington Ave., New York City 17.

Guide for Alcohol storage

• Technical data includes government regulations, suggested tank design, size and location as well as auxiliary equipment. By Technical Literature Dept., U. S. Industrial Chemicals Co., Sect. AP, 99 Park Ave., New York City 16.

Acetoglycerides

• A fourteen page bulletin gives specifications and properties of this group of products in general, and of five specialized grades in particular, as manufactured by A. Boake, Roberts & Co., Stratford, London, E. 15. The five types are described in detail, and an extensive cosmetic formulary is given using this product. A bibliography of twenty one references is given on the general use of acetoglycerides and their properties.

Polyethylene glycols

• Carbowax polyethylene glycols are presented in just-published 65-page booklet produced by Union Carbide Chemicals Co., Dept. AP, 270 Park Ave., New York 17.

A special section is devoted to the application of the material in cosmetics. Physical properties, solubilities, test methods and specification limits are given.

Analytical tool

• "Isolation of Selected Elements with an X-Ray projection microscope" covers the basic idea of this analytical method. Other aspects discussed include: value of absorption coefficient ratio, analyzing pictures by electronics, analyzing pictures photographically, preliminary results, instrument requirements, and the author's conclusions.

Five drawings, six microradiographs, and a table of absorption edge data for 21 selected elements in the atomic scale is presented.

Prepared by Pomona College Physicist Ong Sing Poen, the work is presented in an 8-page folder by Philips Electronic Instruments Dept. AP, 750 So. Fulton Ave., Mount Vernon, N. Y.

Laboratory scale

• Shadograph scales and weighing equipment for laboratory and production applications are described in 8-page catalog just published by The Exact Weight Scale Co., Dept. AP, 538 East Town St., Columbus, Ohio.

The units are pre-determined weight scales with a 1:1 ratio even balance lever. They are designed primarily for repetitive weighing to measure how each of a series of articles compares with an adjustment weight standard.

Descriptions and specifications on

more than 30 units (ranging in capacity from 50 grams to 100 lb.) are included.

Needle valve

• Threaded glass needle valve, stopcock lock, high speed centrifuge separator, and pressure reaction vessels are described in catalog sheet 80M61. Prices are given. Fischer & Porter Co., Dept. AP, 855 Jacksonville Road, Warminster, Pa.

Surface active chemicals

• A service brochure which describes and illustrates the various laboratory and production facilities of Hodag Chemical Corporation is just off the press. Ask for a copy of "Surface Active Chemicals" from the company, Dept. AP, 7247 North Central Park, Skokie, Ill.

Safety precautions

• Recommended safety precautions in electrical switch lockouts are covered in latest bulletin issued by the Manufacturing Chemists' Association, Inc., 1825 Conn. Ave., N.W., Washington 6, D. C.

The Safety Guide, SG-8, gives recommended uses and various safety hints.

Refractometer

• Differential refractometer, (the Refractosyn), for distillation of perfumes and polymerization of essential oils is detailed in catalog sheet just issued by H H Controls Co., Dept. AP, 7 LeRoy Drive, Burlington, Mass. Contact Glenn Armstrong.

Classified Advertising

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MISCELLANEOUS

PARIS: Rent your mailing, receiving, forwarding Paris address, telephonanswering for business-personal service. Unlimited service. Free details. Emaservice, 91 Rue Faubourg, St. Denis, Paris, France.

INDUSTRY EVENTS CALENDAR

May 15-17—**Chemical Specialties Manufacturers Association** (Mid-Year Meeting) Drake Hotel, Chicago. Special Symposium on "Aerosol Insecticides—Up-to-Date" and Annual Aerosol Product Survey.

May 17—**The American Society of Perfumers, Inc.** (Final meeting until Fall) Advertising Club, 35th St. & Park Ave., New York City. Open meeting: Social Hour and Dinner. See full story on page 50, this issue.

May 23—**Chicago Perfumery, Soap and Extract Association, Inc.** (Par-Busters' Golf Outing, River Forest Country Club, Elmhurst, Ill.)

June 8-10—**Manufacturing Chemists' Association, Inc.,** 89th Annual Meeting, Greenbrier, White Sulphur Springs, W. Va. Key Speakers: Commerce Secretary Luther H. Hodges and Robert C. Tyson, Finance Committee Chairman U. S. Steel Corp.

June 20—**Chicago Perfumery, Soap and Extract Association** (Par-Busters' Golf Outing), Thorngate Country Club, Deerfield, Ill.

July 24-26—**American Oil Chemists' Society,** Short Course on newer lipid analyses, University of Rochester, Rochester, N. Y.

July 27—**Chicago Perfumery, Soap and Extract Association** (Par-Busters' Golf Outing), Itasca Country Club, Itasca, Ill.

Aug. 6-12—**18th International Congress of Pure and Applied Chemistry,** University of Montreal, Montreal, Canada.

Aug. 17—**Chicago Perfumery, Soap and Extract Association.** Annual "swing party" and dinner dance, Glen Flora Country Club, Homewood, Ill.

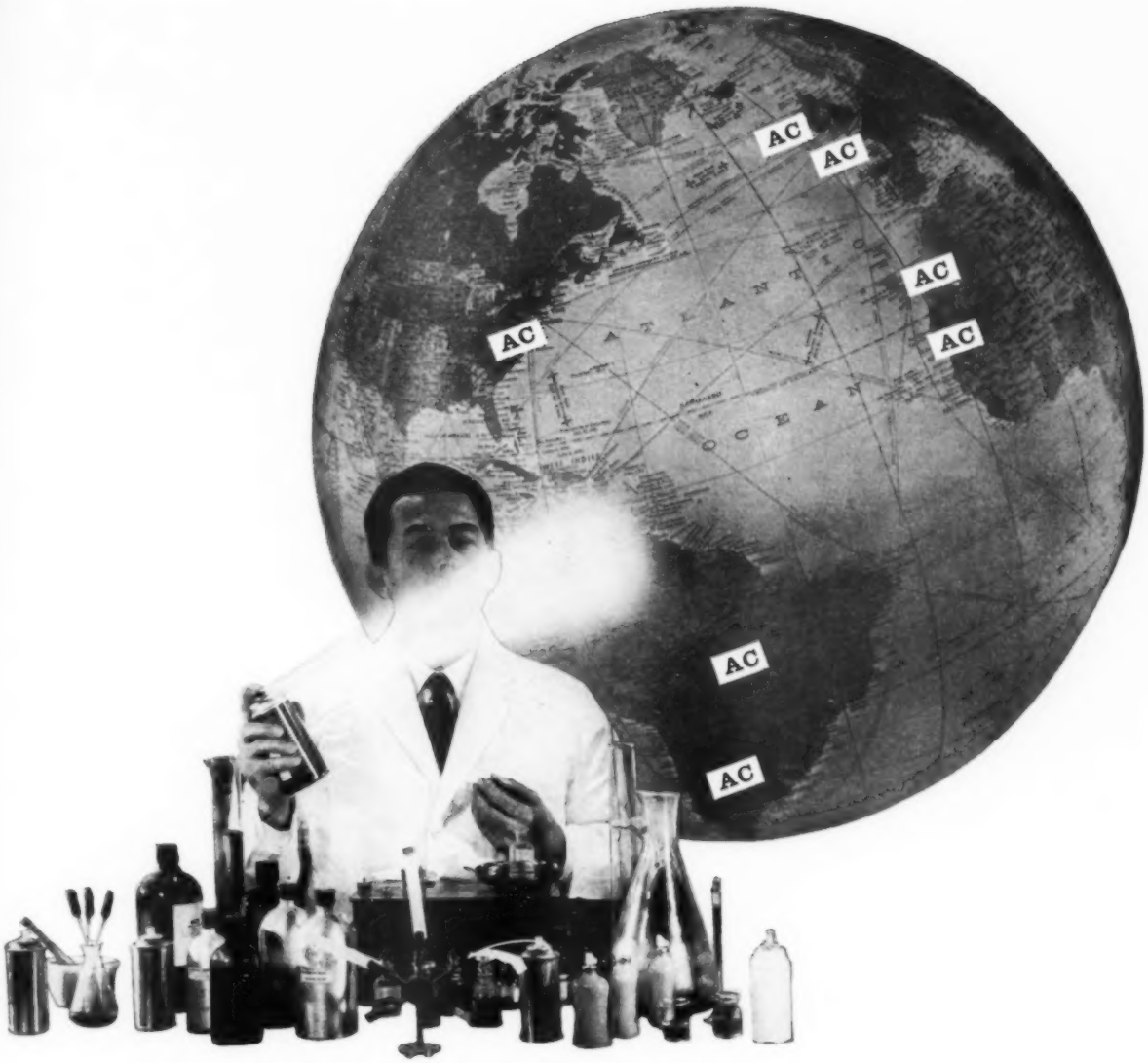
Oct. 18-20—**23rd Annual National Packaging Forum,** Biltmore Hotel, New York City.

Oct. 31-Nov. 1—**First International Symposium of Automatic Merchandising,** McCormick Place, Chicago.

Nov. 7-10—**Packaging Machinery Manufacturers Institute Conference-Workshop and Exposition,** Cobo Hall, Detroit, Mich.

PROFESSIONAL SERVICES

Index OF ADVERTISERS



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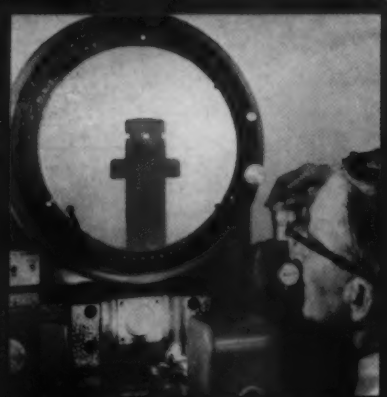
At left, inspector uses hydraulic tester to simulate pressure conditions of filling. Technician on right uses special, custom made gauge to check the orifice in an actuator.



A contour projector accurate to one-half thousandth of an inch enlarges silhouette of valve components up to 50 times for precise checking of dimensions and contour.

In the quality control test on the left, actuators are being examined under a microscope. On the right, orifices of "Micro-Mist" actuators are being checked with a pin gauge.

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